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CONTENTS AND SUBJECT INDEX

The Pharmacologist and the Therapeutist: Chairman's Address. J. H. Musser, M.D., New Orleans...725

The Encephalitis Problem. Josephine B. Neal, M.D., New York.....726

Epidemiology of Epidemic Encephalitis, St. Louis Type. J. P. Leake, M.D., Washington, D. C.; E. K. Musson, M.D., Jefferson City, Mo., and H. D. Chope, M.D., St. Louis.....728

Etiology of the 1933 Epidemic of Encephalitis. Ralph S. Muckenfuss, M.D., St. Louis; Charles Armstrong, M.D., Washington, D. C., and L. T. Webster, M.D., New York.....731

The Symptoms and Diagnosis of Encephalitis (1933 St. Louis Epidemic). Theodore C. Hempelmann, M.D., St. Louis.....733

Breast and Artificial Feeding: Influence on Morbidity and Mortality of Twenty Thousand Infants. Clifford G. Grulee, M.D., and Heyworth N. Sanford, M.D., Chicago, and Paul H. Herron, M.D., Spokane, Wash.....735
Discussed by Drs. Neff, Herron, Durand, Fleischmann and Grulee.

Alcohol and Automobile Accidents. H. A. Heise, M.D., Milwaukee.739
Discussed by Drs. Gettler, McNally, Harger, Rothrock, Norris, Woodward and Heise.

Some Newer Conceptions of Urinary Stone Formation. J. Dellinger Barney, M.D., and E. Ross Mintz, M.D., Boston.....741

Inhaled Silica and Its Effect on Normal and Tuberculous Lungs. Leroy U. Gardner, M.D., Saranac Lake, N. Y.....743

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Gonorrheal Prostatic Abscess in Four Year Old Boy. C. P. Fox Jr., M.D., Greeneville, Tenn.....748

THERAPEUTICS

The Therapy of the Cook County Hospital: Therapy of Barbiturate Poisoning. Edited by Bernard Fantus, M.D., Chicago.....749

COUNCIL ON PHYSICAL THERAPY

Resuscitation. Yandell Henderson, Ph.D., New Haven, Conn.....750

COUNCIL ON PHARMACY AND CHEMISTRY 754

COMMITTEE ON FOODS 755

EDITORIALS

Composition of Tissue Proteins..756
Contraception and Birth Control.756
The Synergistic Etiology of Poliomyelitis 757

CURRENT COMMENT

Epidemic Encephalitis.....758
The Incidence of Trichinosis....758

MEDICAL ECONOMICS

The Wayne County Medical Society, Detroit, Plan.....759

(Subject Index on next page)

ASSOCIATION NEWS 761

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UNEQUALLED ENTHUSIASM

When we mailed out to our subscribers the July Number (from Philadelphia) of the "Medical Clinics of North America," we assured them that they were receiving what was without doubt the finest and most practical number ever published. The unequalled and general enthusiasm accorded this number confirms our opinion. The same type of *run-of-practice diseases and conditions* met by the family doctor are presented in the September Number of the

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Turn to SAUNDERS ADVERTISEMENT—Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

Abdomen, pains in childhood....ab-792
Abortion between two menstrual periods..ab-795
Academy of Medicine, meeting, Italy....768
Accidents, study of deaths due to, New Mexico....762
Aerophagia, belching with....778
Alcohol and automobile accidents..*739; ab-796
Alopecia areata....775
American Academy of Ophthalmology and Otolaryngology....764
Chemical Society....763
Amnion, habitual hydramnion....ab-794
Angina, agranulocytic, due to drugs....ab-796
Arthritis, differential diagnosis....777
gonorrheal, complement fixation test...ab-787
hip joints involved in polyarthritis...ab-792
histamine in....ab-786
Aryan and Nordic myths....764
Aschheim-Zondek test in extragenital chorionepithelioma in male....ab-784
Asphyxia, resuscitation....*750
Association News....761
Asthenia, Bucky's borderline rays for...ab-794
Asthma, desensitization of nasal mucosa..ab-788
Automobile accidents and alcohol..*739; ab-796

Bacteria, aerobic, absorbent pulpit in cultivation....ab-788
Baker, J. N., appointed to National Board..761
Barbiturate poisoning, lesions of....ab-791
poisoning, therapy....*749
Belching with aerophagia....778
Beriberi, death from....762
Birth Control and contraception....E-756
Blindness, hereditary, and sterilization, Germany....766
Blood changes after gastric resection...ab-796
pressure reaction and posture....ab-795
Board Examinations....778
Bone, heterotopic formation vs. venous stasis....ab-786
Book Notices....779
Books Received....Adv. page 32
Brain, diabetes insipidus and interbrain..ab-793
Brucella abortus, dermatitis from treating cows infected with....774

Cancer, British Empire Cancer Campaign report....765
anterior lobe of pituitary hyperactive in..C-772
detecting, Germany....767
radium treatment, advances in....765
Research Institute completed, Japan....770
Caraway seeds, toxicity....777
Cerebrospinal Fluid, chlorides in, in meningitis....ab-791
gonorrheal serum reaction in....ab-791
Chlorpicrine gas, toxicity....774
Chorionepithelioma, extragenital, in male..ab-784
Climate and health....765
Colorado State Medical Society meeting....761
Committee on Foods....755
Cooper, James, not an authorized A. M. A. solicitor....763
Correspondence....772
Council on Pharmacy and Chemistry....754
Council on Physical Therapy....750

Deaths....770
Dengue Fever, mosquito eradication, Alabama..761
Diabetes Insipidus and interbrain....ab-793
Diabetes Mellitus, action of splenic extracts on....ab-791
death rate....763
detecting, Germany....767
Diphtheria in silk mill workers, Japan....769
prevention campaign, Baltimore....762

Eczema, bakers', cause....ab-787
Elbow joint, displacement of internal epicondyle into....ab-790
Encephalitis, Epidemic....E-758
at Fremont, Ohio....763
epidemiology, St. Louis type....*728
narcolepsy, sleeping sickness, etc....773
of 1933, etiology....*731
outbreak, Japan....770
problem....*726
survey, Philadelphia....763
symptoms and diagnosis, St. Louis....*733
Ependymitis, primary....ab-785
Ephedrine, dissolving it in light mineral oil..777
Epilepsy, relationship to migraine, etc...ab-785
transmission of, only appearing in childhood....776
treatment by periodic introduction of air by lumbar route....768
Exophthalmos, mechanism....C-772

Face, treatment of warts on....775
Foot, differential diagnosis of coldness with soreness....775
Foreign Letters....764

Gallbladder inflammation, medical treatment....ab-791
Garlic, therapeutics in cholecystitis and arterial hypertension....777
Geoffroy, Dr., death....766
Gonorrhea, chronic, in women....777
prostatic abscess in 4 year old boy....*748
serum reaction in cerebrospinal fluid..ab-791
Government Services....764
Growth factor from anterior pituitary....C-772

Hay Fever, desensitization of nasal mucosa....ab-788
Headaches at menstrual periods and at week ends....776
Health and climate....765
projects of the C W A....764
Hearing devices in otosclerosis....776
tests, Schwabach's vs. Becker's....ab-787
Herpes-like viruses isolated from epidemic encephalitis....*727
Hip Joints, involvement in polyarthritis..ab-792
Hospitals, British equipment for, England..765
Obstetric Society of Ohio....763

Idiocy, amaurotic family....774
Infants, feeding, breast and artificial....*735
Influenza, epidemic....762
Institute of Experimental Medicine moved from Leningrad to Moscow....769
Insurance, accident: suture of operation wound as medical or surgical treatment....Ml-782
health, national, Japan....769
International Antirheumatic Congress, fourth....768
Intestines obstruction....ab-784

Kahn reaction in mental patients....768
Kato, Naojiro, Admiral Togo and his physician....770
Kidney disease, chronic, disappearance of glomeruli in....ab-784
fetal, function....778
Krankenkassen, reorganization of confidential physicians in, Germany....767

Labor, survey of births, Iowa....762
Laryngectomized persons, speech of....768
Legs, reduction of local obesity....776
Leishmaniasis, transmitted in toys?....777
Leukorrhea in pregnancy....778
Levine, Morris, "Dr.," jailed....762
Liver, acute yellow atrophy of, in pregnancy....ab-783
preparations in bullous oral exanthems..ab-794
Louste, Achille, death....766
Lungs cancer, primary, lobectomy....ab-784
cerebral complications of suppuration..ab-786
inhaled silica effect on....*743
removal of needle from, by incision..ab-795

Maher, Stephen J., honored....761
Marriages....770
Maternal mortality, Richland county leads, Illinois....761
Mediastinum, upper, venous obstruction in....ab-784
Medical Economics....759
Medical Service, Wayne County Medical Society, Detroit, plan....ME-759
Medicolegal....781
Meetings, Coming Meetings....782
Meningitis, chlorides in spinal fluid in..ab-791
roentgen rays for....ab-793
Menopause, symptoms after hysterectomy..ab-783
Menstruation, abortion between two periods....ab-795
headaches at periods....776
"safe period,"....E-756
Migraine, relationship of epilepsy, etc...ab-785
Milk allergy, desensitization in child....775
Mosquito eradication, Alabama....761
Motion Pictures, cineradiography....ab-789
Mouth exanthems, liver preparations in..ab-794
Muscles, postneuritic hypertrophies....ab-789
Myositis, histamine in....ab-786
Myotonia, acquired....ab-789

Needles, removal from lung by incision..ab-795
Nervous System, autonomic....765
Neurosyphilis, nonspecific therapy, indications for....ab-794
New and Nonofficial Remedies....754
News....761
Nose, resection of nasal septum....776
Nursing education, professorship created, U. of Chicago....761

Old Age, subacute spinocerebellar degeneration in....ab-789
Oleothorax in pleuropulmonary diseases..ab-792
Otosclerosis, hearing devices in....776

Pemphigus....ab-785
Pharmacists: prescriptions; error in compounding, liability....Ml-781
Pharmacologist and the therapeutist....725
Physiologists, Congress of French-speaking..765
Pick's Disease, pericardiectomy for....ab-786
Pituitary Body, Cushing's disease....ab-794
extract in vasoneurotic disturbances..ab-795
growth factor from....C-772
Pleura suppuration, cerebral complications....ab-786
Pneumococcus carriers, study....ab-786
Poliomyelitis, survey, Philadelphia....763
synergistic etiology....E-757
Pork, incidence of trichinosis....E-758
Posture and blood pressure reaction....ab-795
Pregnancy, acute yellow atrophy of liver in....ab-783
interstitial, diagnosis....ab-790
leukorrhea in....778
Privileged Communications: waiver; testimony by patient's examining physician constitutes waiver....Ml-781
Prostate abscess in a 4 year old boy....748
Protein action, specific dynamic, significance....ab-795
composition of tissue proteins....E-756
Psoriasis, diet deficient in fat for....ab-791
Purpura, diagnosis and treatment....771

Queries and Minor Notes....773

Rabies, death from, New York City....762
Races, Aryan and Nordic myths....764
Radio Program....761
Radios, protection against noises....776
Rectum, perineo-abdominal excision....ab-790
Reflex, winking, opticofacial....ab-787
Resuscitation....750
Rheumatic Fever, Aschoff body in....ab-781
Rheumatism, detecting, Germany....767
Fourth International Antirheumatic Congress....768
Roentgenotherapy, modified Coutard technic....ab-789

Shock, traumatic fatal....ab-795
Silica as hazard in soap factories....775
inhaled, effect on lungs....743
Sinus infections, vaccines in....777
Sleep, encephalitis and narcolepsy....777
Society Proceedings....782
Speech of laryngectomized persons....768
Spleen, extracts effect on diabetic patients....ab-791
State Board Examinations....778
Sterilization, Sexual, by coagulation of uterine cornu....ab-788
hereditary blindness and....766
Stomach resection, blood changes after...ab-796
Sweat an etiologic factor in vitiligo....ab-788
Swimming Pools, municipal, contaminated, Philadelphia....763
Syphilis, causal agent of, invisible form..ab-792
colloidal mercury sulphide in....ab-788
cutaneous allergic reactions in....768

Tattooing, removal....777
Therapeutics of Cook County Hospital....749
Therapeutist and the pharmacologist....725
Thorax surgery, scope....ab-790
Thrombosis, peripheral arterial....ab-786
Thymus, dysthymia....768
Tissue proteins, composition of....E-756
Togo, Admiral, and his physician, Dr. Kato..770
Tonics and Sedatives....Adv. page 26
Trichinosis, incidence....E-758
Tuberculosis, detecting, Germany....767
inhaled silica effect on lungs....743
state division approved, Missouri....764
Typhoid in Decatur, Alabama....761

Urinary Tract, calculi....741
Urine, protein in, simple method for demonstration....ab-795
Uterus cancer, ferments in....ab-790
excision, menopausal symptoms following....ab-783

Vasoneurotic disturbances....ab-795
Verruca on face, treatment....775
vulgaris, autolysate therapy....ab-785
da Vinci, Leonardo, knowledge of embryology....768
Vision, does Credé method impair vision?....777
Vitiligo, sweat an etiologic factor in....ab-788
Vreden, R. R., death....769

Wayne County Medical Society, Detroit, plan of complete medical service...ME-759
Woman's Auxiliary, meeting....763

Xanthomatosis, generalized....ab-793

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THE PHARMACOLOGIST AND THE THERAPEUTIST

CHAIRMAN'S ADDRESS

JOHN H. MUSSER, M.D.
NEW ORLEANS

The title of this section, the Section on Pharmacology and Therapeutics of the American Medical Association, is particularly appropriate. Pharmacology and therapeutics are scientific subjects closely linked the one to the other and fundamentally dependent on each other. Without the division of pharmacology, the division of therapeutics would be utterly and completely in a state of disorganization, and, without therapeutic application of pharmacologic studies, pharmacology would be a moribund or dead science.

Pharmacology is defined as a branch of science that has to do with drugs in all their relations. Therapeutics is defined as the practical branch of medicine dealing with the treatment of disease (Steadman). These definitions indicate that it would be platitudinous to remark that pharmacology could not exist without therapeutics or that therapeutics could have any reason for being or existing without pharmacology. The definition of pharmacology is a more comprehensive one than is that of therapeutics. Pharmacology presumably deals with drugs in all their relations, therapeutics merely with drugs as applied to diseased individuals. Pharmacology teaches exactly and scientifically the effects that a drug has on the systems, functions and reactions of the normal body as well as the diseased body, whereas therapeutics deals only with disease. Pharmacology may be likened to an exact science, one in which results may be predicted accurately and the anticipated effects predicated on that which has been done before. While not a science of the exactness of chemistry, mathematics or physics (and what biologic science is?) nevertheless the experimental results are definite, positive and clear cut in the majority of instances. A dose of belladonna or of its alkaloid atropine can be expected to bring about a definite effect on the heart, on the eye, on the circulation and on the secretions of the animal so injected when given in ordinary experimental doses. On the other hand, while atropine is given by the therapeutist for certain definite purposes, the therapeutic dose of the drug may not and probably will not occasion a clear-cut, definite picture of the action of the drug. The effect in the human being may be modified by many extraneous features and if that human being is a diseased individual it may be modified still further. These extraneous features of drug administration render therapeutics at best a quasiscientific matter.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

If it is then admitted or acknowledged that pharmacology and therapeutics differ to a considerable extent and the one represents exactness, precision and accuracy, the other at least very often or all too often nebulousness, the fact remains nevertheless that the two are very closely integrated and correlated. Empirical therapeutics may exist without pharmacology. Unfortunately it has in the past; but happily nowadays pharmacology steps in to explain the modus operandi or the method of therapeutic action of drugs with due regard to scientific observation. The two branches of medicine exist, then, only by the grace of the one to the other. Without therapeutics there would be no purpose and no place for pharmacologic observation except as an occasional physiologic experiment or else to inform the mind of the intellectually curious. Definitely the two are interdependent.

If it is conceded that the two sciences, the one basic, the other subservient, are closely bound the one to the other, it cannot be said for one moment that the practitioners of the science of pharmacology and practitioners of therapeutics are in any way, form or manner closely allied.

The pharmacologist works in his laboratory; his scheme of procedure in an experiment is carefully planned and thought out. He can give all the time possible or needed to the experiment. The practitioner of therapeutics, the physician, labors under difficulties that the pharmacologist cannot realize or appreciate. The physician is called on to give immediate treatment in case of emergency; he must act quickly; he does not have the time and the opportunity to plan his line of attack carefully: something must be done immediately. His results cannot be anticipated as can those of the pharmacologist. He is dealing with a man possibly sick unto death and must act promptly.

As a result of the variations in the character of the work that the pharmacologist and the therapeutist do, as a result of the circumstances under which each works, because the one is often a doctor of philosophy and the other always a doctor of medicine, because the one works with the human and the other on a lower animal, necessarily considerable divergence of results will be noted by the two observers, the one in his laboratory and the other at the bedside, when a comparable or a similar drug is given. Thus there has gradually grown up, I believe, a tendency for the one man to look with skepticism on the work of the other. The pharmacologist becomes irritated or disturbed by the failure of the therapeutist to put into practice the results of the pharmacologist's experiments. He feels that his results could and should be confirmed always by the man who is administering drugs. He loses patience with the man who cannot always accurately control his clinical experimentation. The therapeutist, on the other hand, is wont to criticize the laboratorian on the basis that he does

not know under what circumstances the practitioner has to do his work. He contends that the pharmacologist's work is not practical, that unfortunate and unhappy word so often abused by the clinical; he holds that the experimental animal is a very different animal from the human animal and he maintains that a laboratory test is not comparable to the test of the efficacy of the drug in man.

Utopia would be such a close working affiliation as existed between McKenzie, the great clinician, and Cushney, the equally distinguished pharmacologist. Of course it would be almost an impossibility ever again to get such splendid men to work together and collaborate as did these two. Cushney worked in McKenzie's wards, he saw the patients and he would observe in man the pharmacologic effects of the drugs administered. Equally satisfactory is the combination, in one man, of clinical judgment and experience with laboratory training. Cushing, the surgeon, is as much at home in the laboratory as in the clinic. His revolutionary pharmacologic work was the development of his observations in the clinic and in the laboratory. A man such as Cohn is a clinician who uses the precise methods employed by the man in the laboratory. Clinicians of this type have had a laboratory training, which all therapeutists cannot have. Certainly much can be done and will be done by the therapeutist who is laboratory minded and trained, a fortunate combination which few men will be found to possess. Every therapeutist who is not trained in the laboratory should have the help and advice of a pharmacologist, and every pharmacologist should have the opportunity of working with the human sick as well as with the experimentally diseased animal.

I have dealt with the self-evident fact that pharmacology and therapeutics are close relations. I would urge that the pharmacologist and the therapeutist be brothers in fact and not in theory.

1430 Tulane Avenue.

THE ENCEPHALITIS PROBLEM

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NEW YORK

The encephalitis problem has many angles. It is easy enough to call attention to the points involved but practically impossible to present any satisfactory answers.

For nearly twenty years there have been outbreaks in various parts of the world of acute infections of the central nervous system, exclusive of poliomyelitis and meningitis. These have differed in seasonal incidence, in age distribution, in case fatality and in clinical manifestations. They have usually been described as some form of acute encephalitis or encephalomyelitis. In conjunction with these more or less spontaneous cases there has been a marked increase in the reports of encephalitis following vaccination, measles and other acute infections. While it is now known that encephalitis may run a mild course in the acute stage and escape recognition, the symptoms in the more severe cases are so arresting that they could hardly have passed unnoticed. It is not probable that clinical diagnosis has been any keener in the past two decades than in the preceding years. It is safe to assume, therefore, that the encephalitis problem has reawakened during the past two decades. Historical accounts indicate that encephalitis is by no means a new disease and that doubtless outbreaks have occurred at intervals down the centuries.

The first question, then, may be stated: Why does encephalitis lie dormant for many years and then awaken to plague mankind? To this, no answer has been given.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

TABLE 1.—*Tentative Classification of Acute Encephalitis*

	Etiology
Epidemic encephalitis / Acute encephalomyelitis	Neutropic herpes virus ?
Australian X disease	Transmitted to rabbits, monkeys, sheep, colt, etc.; virus
Japanese type B	Filtrable virus pathogenic for rabbits
Encephalitis following vaccination	?
Encephalitis following infections	?
St. Louis epidemic	Virus pathogenic for mice and somewhat for rhesus monkeys

The second question may be formulated: What relationship, if any, is there among these various outbreaks and types of acute infections of the central nervous system?

Table 1 lists the more important of these.

This question can be answered only when a more definite knowledge of the etiology has been obtained.

It should be noted that one of the earliest groups of cases to be reported was that which occurred in France in 1915-1916 on the Western front and which was described as subacute encephalomyelitis by Cruchet, Moutier and Calmettes.[1] Other similar groups have been reported in Ohio by McIntyre [2] and by Stout and Karnosh.[3] Scattered cases have also occurred in various places. It has been considered by many that encephalomyelitis is a type of epidemic encephalitis. So far as I know the only instance in which a virus has been isolated in this disease is the W virus isolated by Gay and Holden.[4]

The etiology of epidemic encephalitis has not been definitely proved. The disease is generally believed to be due to a filtrable virus, and until the studies of the St. Louis epidemic were established it was more or less taken for granted that a single virus was probably the agent responsible for the disease. Considerable weight must be attached to the evidence that a neurotropic herpes-like virus is the etiologic factor in many cases, at least, of epidemic encephalitis. Several strains of this virus have been isolated and carried on in series.

Table 2 shows the instances in which this virus has been isolated.

It should be noted that these viruses are not identical in their various reactions. Dr. Holden has worked extensively with the herpes virus and with E. L. 1, W and J. A. These viruses all produce an encephalitis in rabbits but intradermal injections of J. A. and W regularly produce an ascending myelitis in rabbits, while intradermal injections of the herpes virus and E. L. 1 rarely produce this reaction. W and the herpes virus are very pathogenic for mice, while J. A. is not. A typical encephalitis in cebus monkeys has been produced

1. Cruchet, Moutier and Calmettes: Bull. et mém. Soc. méd. d. hôp. de Paris **41**: 614, 1927.
2. McIntyre, H. D.: An Unusual Encephalopathy, Probably Infectious in Origin, J. A. M. A. **100**: 1097 (April 8) 1933.
3. Stout, R. E., and Karnosh, L. J.: Acute Disseminated Encephalomyelitis, J. A. M. A. **101**: 667 (Aug. 26) 1933.
4. Gay, F. P., and Holden, M.: Tr. A. Am. Physicians **48**: 16, 1933.

by W. Further studies of these viruses must be made to learn their exact relationship.

In table 1 there is little that needs to be discussed. While experimental work in the Australian X-disease showed that it could be transmitted to rabbits, monkeys, sheep and a colt, the virus was not extensively studied in relation to other viruses. There is evidence that some of the cases were poliomyelitis. But others were undoubtedly encephalitis, since one child developed parkinsonism in a short time and two others had mental disorders following the illness.

From the Japanese type B encephalitis of 1924 several strains of virus were isolated by Takagi [5] and was called by him the "virus of encephalitis japonica." This was differentiated experimentally from the various herpetic encephalitic viruses.

The etiology of encephalitis following vaccination and acute infections is best expressed by a question mark. Are they caused by some recent change in the properties of the vaccine virus and the virus of measles, for example? Are they caused by the activation from lowered resistance of a latent encephalitic virus? (I have seen acute encephalitis follow toxin-antitoxin administration.) Or are they caused by some symbiotic reaction of an encephalitic virus and the vaccine or measles virus? After all, the diagnosis of these forms of encephalitis can be made solely on the history. Their clinical symptoms and the development of the chronic stage differ in no way from epidemic encephalitis.

The St. Louis epidemic of 1933 has the distinction of being the only outbreak in which the etiologic agent has been definitely established. This is a newly isolated virus pathogenic for mice and less so for rhesus monkeys. It has been demonstrated by Muckenfuss, Armstrong and McCordock,[6] Webster and Fite,[7] and Holden. At one time it was suggested that it was the same as the Japanese type B on account of the seasonal occurrence and age distribution. Recently Webster and Fite [8] have been so fortunate as to obtain serum from convalescent patients in Japan and have demonstrated serologic differences.

TABLE 2.—*Herpes-Like Viruses Isolated from Material from Cases of Epidemic Encephalitis*

Investigator*	Date	Name of Virus	Material Used
1. Levaditi and Harvier	1920	C	Brain
2. Levaditi and Harvier	1920(?)	Ch	Nasopharynx
3. Netter, Césari and Durand	1921	.....	Brain
4. Doerr and Schnabel	1921	Bâle I	Cerebrospinal fluid
5. Doerr and Berger	1922	Bâle II	Brain
6. Berger	1922	Bâle III	Brain
7. Schnabel	1923	Berlin	Cerebrospinal fluid
8. Luger and Lauda	1923	Wien	Cerebrospinal fluid
9. Doerr and Zdansky	1923	Hogander	Brain sent by Kling
10. Perdrau	1925	E. L. 1	Brain
11. Perdrau	1925	.....	Brain
12. Gay and Holden	1932	W	Brain and cord
13. Gay and Holden	1933	J. A.	Brain

* The references for all the investigators cited except Gay and Holden [4] are Matheson Commission: Epidemic Encephalitis, New York, 1929, p. 90, and Neal, Josephine C.: The Present Status of the Etiology of Epidemic Encephalitis, J. A. M. A. **91**: 231 (July 28) 1928.

The problem of the etiology of acute encephalitis and, in consequence, of the classification and nomenclature of cases becomes, if possible, more confused than ever. I have stated before and still maintain that the symptomatology of the cases in St. Louis did not differ from that of the cases of the meningeal type of encephalitis that has been more or less common in New York since the fall of 1918. It is probable that in the future serologic tests will need to be extensively used in making a diagnosis of acute encephalitis.

A third question of interest is this: What is the mechanism of the development of the chronic stage of encephalitis?

When the chronic stage of the disease was first observed it was thought to be due to the effects of the inflammatory reaction of the acute stage. An occasional patient is seen with residuals only of the acute stage. In these patients, however, the disability remains the same or even shows a tendency to improve at least over a period of many years. But this is not, I believe, the true chronic stage of encephalitis, which is usually a progressive affair, and which develops in most instances after months or years (sometimes from ten to fourteen years) of apparently complete restoration to health. It is probable that from a third to a half of the patients who recover from acute encephalitis eventually go into the chronic stage. Is this phase, differing so widely in most of its signs and symptoms from the acute phase, caused by the virus, which has remained latent, beginning to smolder? Sometimes the onset of the chronic stage seems to be precipitated by an acute infection or by an accident or mental shock, but far more often no such possible contributing factor can be found.

As a subheading of this question, the not infrequent occurrence of acute exacerbations may also be considered. I can think of one patient who has had three acute episodes over a period of eight years. All of them were quite different in their manifestations and from all three there was a complete recovery. Were they due to reinfections or were they caused by the flaring up of a latent virus?

A fourth question relates to the possibility of treatment. I myself am quite optimistic in regard to effective methods of treatment being developed when there is more definite knowledge in regard to the etiologic agent. That one can no longer think of acute epidemic encephalitis as being caused at all times by the same virus seems definitely established. But if by serologic tests the infecting virus can be identified in a particular case, it should be possible by active immunization to raise the resistance of the patient so that his chances of recovery will be increased and the possibility of the development of the chronic stage greatly lessened. And even if the patient has reached the chronic stage, it may well be that its further development may be halted by active immunization, especially if the treatment is begun early. If this could be brought about, I believe that many patients in the chronic stage would show a considerable regression of their symptoms. I believe this because many pathologists state that the symptoms are often out of all proportion to the lesions that are shown at necropsy. Furthermore, several of our patients in a fairly well advanced stage of parkinsonism have been restored almost completely to normal, whether as a result of treatment or of spontaneous improvement, I cannot say. And also the great majority of patients tell me that after awakening from a restful night's sleep there is a varying period in which they are completely free from any disability.

For the past five years the Matheson Commission has been treating patients in both the acute and the chronic stage of encephalitis. The method of treatment that has given the best results is that of attempting to immunize patients actively against the neurotropic her-

5. Takagi, I.: Japan M. World **5**: 147 (June) 1925; Ztschr. f. Immunitatsforsch. u. exper. Therap. **47**: 431, 456, 1926.

6. Muckenfuss, R. S.; Armstrong, C., and McCordock, H. A.: Pub. Health Rep. **48**: 1341, 1933.

7. Webster, L. T., and Fite, G. L.: Science **78**: 463 (Nov. 17) 1933.

8. Webster, L. T., and Fite, G. L.: Science **79**: 254 (March 16) 1934.

petic virus. A few patients in the acute stage have also received intramuscularly rabbit serum hyperimmune to this virus. While quite spectacular recoveries have followed the use of this serum, our series of cases thus treated is too small to permit definite conclusions to be drawn. The patients treated in the acute stage by serum or vaccine or both are being followed and eventually the effect if any on the development of the chronic stage will be known. Up to the present time no patients have begun to show signs of going into the chronic stage. In a few instances there are still residuals of the acute stage.

During the past year Gay and Holden have been preparing a vaccine consisting of the formalized virus, and so far the results with this vaccine seem to be particularly good. Our efforts at treatment are described in more detail elsewhere,[9] and time does not permit a more extended discussion here; but I may state that my associates and I are working with open minds and with an attempt to keep adequate controls.

A fifth question deserves serious consideration. What provision can be made for the hospitalization of patients in the chronic stage of encephalitis? There are tens of thousands of these patients in the United States, most of them without the means to provide themselves with adequate care. Some are in state hospitals, some are in institutions for the care of the financially dependent, many are at home. Very few are enjoying the benefit they might derive from proper physical therapy, occupational therapy and symptomatic treatment. Hospitals especially designed for these patients are urgently needed. They are needed not only for the sake of the patients and their families but also because studies carried out in such hospitals would, in time, add greatly to the knowledge of this baffling disease.

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EPIDEMIOLOGY OF EPIDEMIC ENCEPHALITIS, ST. LOUIS TYPE

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Final opinion regarding the exact nature of the encephalitis epidemic in St. Louis City and County in the late summer of 1933 and regarding its pathogenesis and spread must await further study, although some information has been obtained that may give more definite trends to the estimation on these points.

TYPE OF DISEASE

In recent years, encephalitis, like poliomyelitis, has been always present, and at every season, in communities of large size. A survey of the more important cities of the United States reveals that many of the cases currently being reported as epidemic or lethargic encephalitis lack the characteristics either of the disease as seen in St. Louis in 1933 or of the disease as originally called lethargic encephalitis by von Economo or epidemic encephalitis since Economo's first description. Some of these current cases prove to be some other condition in their further course; in others, on account of early fatality after being first brought to clinical attention or for some other reason, observation has been too limited to point definitely toward the diagnosis of encephalitis, while still other cases are diagnosed epidemic encephalitis on the basis of behavior disorders or juvenile parkinsonism without any clear history of an attack of encephalitis itself.

It would perhaps be well if all forms of infectious encephalitis were reported under item 17 in the 1930 International List of Causes of Death, without regard to whether they were lethargic or epidemic, leaving for item 78, in diseases of the nervous system, only noninfectious encephalitis, such as purulent encephalitis. The Economo disease though labeled "epidemic encephalitis" is not now, and never has been, epidemic at all as compared with the Japanese and St. Louis outbreaks of encephalitis.

Of the forms of infectious encephalitis that come into consideration in connection with this epidemic there may be considered first, and dismissed, the encephalitis due to the virus of acute anterior poliomyelitis. This is an exceedingly rare form of poliomyelitic infection when not combined clinically with a myelitis; so far as known, with the very questionable exception of the Australian epidemic of 1917 and 1918, it has never appeared by itself with epidemic prevalence.

The postinfection encephalomyelitis, which is characterized, as Perdrau has shown, by a patchy demyelination, occurs typically (but rarely) after measles, vaccinia, variola and varicella, and at a fairly definite period in the evolution of these diseases. Individual cases of postinfection encephalitis might be confused with the disease in St. Louis.

In comparing this epidemic with the form of infectious encephalitis chiefly prevalent from 1917 to 1923, which goes by Economo's name (lethargic or "epidemic" encephalitis), and in comparing it with the Japanese type B, epidemics of 1924 and 1929, it will be shown elsewhere that there are distinct differences between the usual manner in which von Economo's encephalitis appears and the St. Louis epidemic, but between the Japanese type of the disease and the St. Louis type, no clear distinction can be made. Even with the Economo disease, however, one might not be able to differentiate an individual case from the disease as it occurred in St. Louis.

The outbreak that occurred in the summer of 1932 in Paris, Ill., is the closest precedent for the St. Louis outbreak; clinically and epidemiologically they might be regarded as identical. Through the courtesy of the Illinois State Department of Health, the Paris physicians, and particularly the local health officer, Dr. W. E. Conklin, a search was made for cases in that city. Thirty-eight cases, similar in all respects to the St. Louis cases, occurred during the summer of 1932, 75 per cent of them during the three weeks from August 2 to August 22. This was an incidence of 433 per hundred thousand of population, over four times the rate in St. Louis City and County in the following year, greater than the rate in any subdivision of the St. Louis area of comparable size, and 60 per cent more than the rate in Kagawa, the most severely affected province of Japan in the heaviest epidemic year, 1924. Thirty-seven per cent of the Paris cases were fatal, as compared with 20 per cent in the St.

9. Neal, Josephine B., and Bentley, I. A.: Treatment for Epidemic Encephalitis, Arch. Neurol. & Psychiat. **28**: 897 (Oct.) 1932.

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Louis epidemic, 60 per cent in the Japanese 1924 epidemic, and 63 per cent in the 1929 Japanese outbreak of 2,000 cases. As in St. Louis and Japan, there was a great preponderance of cases in the older age groups in Paris, 82 per cent being in persons over 50 years of age. As to sequelae, also there was a notable lack of the distressing after-effects, which so frequently follow the Economo type of the disease that their occurrence in a considerable proportion of the cases is almost characteristic. In spite of the advanced age of many of the patients who had had a severe febrile attack with temperature exceeding 104 F. and with marked cerebral involvement, very little increase of the deterioration to be expected with age was found in the Paris patients fifteen months afterward. In less than 2 per cent of the Japanese cases were after-effects detectable one year following the 1924 epidemic.

THE ST. LOUIS OUTBREAK

It is believed that the basic epidemiologic data of the St. Louis epidemic are fairly reliable. A check up, at the close of the epidemic, of homes not known to have been infected, covering sample neighborhoods in all parts of the city and suburbs, revealed practically no unreported cases.

There are two questions that occur in this connection: Did many mild cases occur that could not be diagnosed as encephalitis by any of the ordinary standards? From the random fashion in which the frank cases of the disease occurred in the community, this might be reasonable; yet actual search failed to reveal them in any significant numbers, either in other members of households where a frank case existed, or in households in which no case had been reported. Several of the St. Louis physicians whose practice carried them into homes of the well-to-do believed that they saw during the summer an unusual number of mild, indeterminate illnesses, particularly among children; but the total number of such reports was not great.

It was noted that the cases in this epidemic, while lacking a single definite and unifying pathognomonic sign, were in general less varied in their symptomatology than the cases previously described under the term "epidemic encephalitis." The fact that hospitalization was the rule also made for more uniform and more accurate diagnoses. But a further question arises: Did the practice of using an increased cell count in the spinal fluid to determine the diagnosis tend to cause the inclusion of illnesses due to other causes or to exclude cases that should have been called part of the epidemic? It is not believed that any notable error crept in from this practice, in spite of the errors in sampling involved in the count of a small number of cells. The cases that responded to the disease in general symptomatology did show an increase in cell count at some stage of their course in almost all instances, and there was no considerable group of cases failing to fall in with the clinical picture of some one of the types of the disease that were called encephalitis merely on the basis of the spinal cell count. Cell counts higher than normal were much more uniformly found in this epidemic than in "epidemic encephalitis" in general. It is none the less to be recognized that the spinal fluid in typhoid, for example, and in some other diseases with pronounced cerebral symptoms may show pleocytosis independent of any idiopathic encephalitis.

The very first cases in the epidemic had their onset late in July and the epidemic practically ended with October. A few straggling cases were reported from time to time during the winter months, none during the spring months. The outbreak began in St. Louis County and subsided there first. Five hundred and seventy-seven cases occurred in St. Louis city and 520 in the county, making a rate of approximately 100 cases per hundred thousand of population for the entire area, or 69 per hundred thousand for the city and 212 per hundred thousand for the county. Although this disease was new to all of us as a type distinct from Economo's encephalitis, its general epidemiology was so similar to that of poliomyelitis that we were able to predict, when the epidemic was only three fifths over [1] (656 cases having occurred out of a final total of 1,100) to a fraction of a per cent what the total incidence per hundred thousand of population would be (100), and with the same grade of accuracy the total case fatality (20 per cent). The fact that the final figures did coincide so exactly with round numbers was of course fortuitous.

Taking the city and county together, the proportion of cases that occurred in males was the same, 50.9 per cent, as the proportion of males in the total population. As to color, 9.9 per cent of the cases were reported in colored persons, who form 10.1 per cent of the total population. The disease apparently showed no preference as to sex, color or economic status.

The accompanying table shows the specific case incidence, the death rate per hundred thousand, and the case mortality rate for decennial age groups in city and county together.

Case Incidence and Death Rates by Age Groups in the St. Louis City and County Encephalitis Epidemic of 1933

Age Group	Cases per 100,000 of Population in Each Decade	Deaths per 100,000 of Population in Each Decade	Case Fatality, per Cent
0- 9 years	54	4	8
10-19 years	64	3	5
20-29 years	68	3	4
30-39 years	73	6	8
40-49 years	119	14	12
50-59 years	169	36	21
60-69 years	285	109	38
70-79 years	364	204	56
80-89 years	419	335	80

This table shows a striking increase in the incidence of the disease with age, and an even more notable increase in the fatality with age. The latter tendency is not extraordinary in an infectious disease but is unusual to this marked extent, and the former tendency is practically unknown in infectious diseases except for the Japanese epidemics and the Paris, Ill., prototype of the St. Louis epidemic. The combination of increasing mildness of the disease and less frequent recognition with descent in the scale of years from old age toward childhood suggests strongly the possible presence of very many cases of the disease in unrecognized forms among persons in the younger age groups, previously discussed.

No noteworthy difference was observed in case fatality (mortality per hundred cases) between cases occurring during the first part of the epidemic and those during the latter part. The fatality rate in the county was 17.5 per cent, as compared with 22.5 per cent in the city, a difference that was evident throughout all age groups in which the numbers were large enough to have any significance. This might be attributed to

1. Leake, J. P. Encephalitis in St. Louis, J. A. M. A. **101**: 928 (Sept. 16) 1933.

slightly milder strains of the disease predominating in the suburbs in spite of a heavier incidence, to better resistance against lethality on the part of suburban dwellers, or to their securing medical attention and recognition in illnesses milder than would generally secure such attention in the city.

In fatal cases death came oftenest six days after onset, and in more than half within the first week.

Reliable data on the incubation period of a prevalent disease in urban communities are difficult to obtain. The many possible opportunities for infection make uncertain any conclusion from apparently connected cases. In this epidemic, however, only cities in the St. Louis section of the country showed any appreciable amount of infection with this form of encephalitis, and it was thus possible to assign boundaries to the infected region. Persons entering this region without previous contact with infected territory and later contracting the disease might reasonably be assumed to have had an incubation period no longer than the interval between their coming into the infected area and the onset of the disease. In the six cases of this sort that were recorded, the maximum incubation period thus ascertained was nine, twelve, fourteen, fourteen, fourteen, and twenty-one days, respectively. Other persons would have their first symptoms at some time after going from the St. Louis area into presumably uninfected surroundings. Here the incubation period we should suppose to be not less than the interval between the date of entering the infected area and the date of onset. In the seven cases of this kind, the presumed minimum incubation period was four, seven, eight, nine, eleven, thirteen and fourteen days, respectively. According to this, one would expect about half a dozen cases to have incubation periods ranging at least from nine to fourteen days, and possibly from four to twenty-one days. Among a thousand cases a somewhat wider range might be expected.

The epidemic centered in St. Louis County and did not radiate far. About 150 cases occurred in Illinois, including the nearby cities across the Mississippi River from St. Louis, but the disease did not spread to Chicago, 250 miles away. Two definite Illinois foci did occur 75 and 100 miles from St. Louis and about twice as far from the Paris focus of 1932. Louisville, 250 miles from St. Louis, was the only other locality to the east to have any considerable number of cases.

To the west, scattered cases in excess of the normal occurred in Missouri and Kansas, with foci in Columbia, in and around Kansas City, and in St. Joseph, respectively 100, 230 and 250 miles from St. Louis. In the largest three of these foci, that is, the Kansas City area, Louisville and St. Joseph, a tendency was evident that was noted in St. Louis for the cases to be more numerous in the outlying sections than toward the center of the cities. In the Kansas City area there were 181 cases and in St. Joseph 45, with fatality rates of 23 and 30 per cent, respectively. The tendency toward selecting the older persons was noticeable, and the curve of the Kansas City outbreak, as to dates, was similar to that of the St. Louis cases.

In all places where the disease has appeared there has been a notable freedom from multiple cases in the same family or from other obvious contagion between cases. This is even more striking than in outbreaks of poliomyelitis, and some difference in that direction would be expected between a disease primarily of children and one of old people. As regards communities, the spread by contagion, presumably by human transfer, is obvious, but as regards individuals, the reverse is true: with the disease established in a community, the matter of individual susceptibility, in which age played a part, appeared to be a much more important determining factor in contracting the disease than did contagion. In many of the households affected, the least mobile member, and the one least in contact with the outside world, was the one stricken. The sharp seasonal limitation of the disease in its typical form is also noteworthy. In none of the places to which the disorder spread did the outbreak prolong itself beyond the season during which it prevailed in St. Louis.

There were no instances of two attacks in the same individual, but persons who had had an attack of poliomyelitis, even within a few years, were not spared from this disease.

The possibility of spread by drinking water was considered early in the outbreak. The fact that the city and the county municipalities received their water supplies from different pumping stations suggested a possible reason for the outbreak being largely a county affair. This possibility was promptly eliminated. There was no selective distribution of cases throughout city and county on the basis of milk supply, no dealer or dealers having a disproportionate number of cases among patrons.

The sharp limitation of the epidemic to the warm season of the year, and the lack of obvious connection between the cases as to contagion, water supply, food supply or milk supply, suggested at once one of the major objectives of the epidemiologic inquiry; namely, the possibility of transmission by insects. Entomologic investigation pointed to mosquitoes as being the most probable vector if there was an insect vector. No other biting insect, not even Stomoxys calcitrans, the biting stable fly, was likely to have a flight range long enough and breeding places so situated as to account for the wide and fairly rapid spread of the disease. The summer was an exceptionally dry one, and though replies to specific inquiries varied, it was generally believed that mosquitoes were worse than usual.

Aside from the studies on the virus and clinical studies, entomologic investigation was the first laboratory phase of the joint inquiry. It was conducted by a corps of workers of the United States Public Health Service. Laboratory facilities were provided by the Oscar Johnson Institute of Washington University, and special humidity and temperature rooms were placed at their disposal by the Missouri Botanical Gardens. Later these investigators were joined by a group from the United States Army with special facilities for Aedes experiments.

Attempts were made to inoculate monkeys and mice by the bite of mosquitoes that had been allowed to feed on encephalitis patients at various stages of the disease and allowed to bite the experimental animals at various periods after the initial feedings. Initial feedings were also made on inoculated monkeys and mice. Parts of the lots of presumably infected insects were also ground up at various times and inoculated into monkeys and mice. The three species of mosquitoes on which chief stress was laid in the experiments were Aedes aegypti, on account of the ease with which this insect may be handled experimentally, Anopheles quadrimaculatus, on account of the presence of malaria clinically and this host having been found in the district concerned, and Culex pipiens, which was the common mosquito of

the region and, in spite of the difficulty in handling for experimental purposes, was the only species that could reasonably be incriminated as the possible vector in nature for this outbreak.

All the tests were negative.

On account of the relatively low percentage of success with monkey intracerebral inoculations (only 40 per cent) under the most favorable experimental conditions, it was believed that only human experiments would show the possibility of contracting the disease through the bite of a mosquito under natural conditions. For this purpose the governors and the health commissioners of the states of Mississippi and Virginia allowed certain of the convicts in the state penitentiaries to volunteer to submit themselves to the bites of presumably infected mosquitoes. All three species of mosquitoes were used, and various periods of the disease were used for the initial feedings and various intervals for the attempted human inoculations.

Here again all tests were negative.

In spite of entire failure under a wide variety of experimental conditions, we cannot say that the possibility of transmission of encephalitis by mosquitoes in nature is finally disproved. It would be extremely difficult, however, to account for the somewhat uniform diffusion of the disease over a wide metropolitan area on the basis of such transmission being the major factor in the spread of the disease.

In the 1878 yellow fever epidemic in St. Louis, there were 151 cases with 71 deaths, of which 31 (23 fatal) were of indigenous origin, and in general these cases were in groups closely connected geographically, without any diffusion over the city.

In view of the negative results of the insect experiments, the diffuse fashion in which poliomyelitis, except in the most intense epidemics, spreads through a community, without apparent contagion between cases, and the radial spread of this epidemic of encephalitis by communities, but not by individual cases, it appears likely that human contagion, chiefly by unrecognized carriers, is the method of infection here, but that susceptibility, in which age is an important factor, determines who will contract the disease in an infected community.

SUMMARY

1. The type of disease in the St. Louis outbreak was unlike that in the sporadic cases of the Economo disease but very much like type B of the Japanese outbreak in 1924, and almost exactly like the Paris, Ill., outbreak of 1933.

2. The cases were fairly accurately and completely reported.

3. The case rate for the entire area was 100 per hundred thousand—69 per hundred thousand for the city and 212 per hundred thousand for the county.

4. There was no predilection by sex or color.

5. There was a striking increase in both incidence and fatality rates with age.

6. The fatality rate was higher in the city than in the county.

7. The incubation period in different cases showed a variation between nine and fourteen days, with possibly wider limits.

8. There was a notable rarity of multiple cases in the same family and of obvious contagion between cases

9. Between communities the spread was obviously by human contagion; but as regards individuals, individual susceptibility, in which age played a part, appears to be more important than contagion.

10. The disease appears to be limited seasonally in its typical form.

11. Water supply and milk supply were eliminated as possible mediums of transmission.

12. Entomologic experiments with the mosquito as a possible vector were negative.

ETIOLOGY OF THE 1933 EPIDEMIC OF ENCEPHALITIS

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The epidemic of encephalitis occurring in St. Louis and Kansas City during the summer of 1933 differed in a number of clinical and epidemiologic characteristics from the majority of previously reported epidemics. Since it is probable that these differences may be the result of different causative agents, no attempt will be made to review the voluminous and conflicting literature on the etiology of encephalitis, and this paper will be limited strictly to studies on the disease occurring in epidemic form in the recent outbreak.

Investigations into the etiology of the 1933 outbreak of encephalitis may be said to have begun before the nature of the disease was recognized or the onset of an epidemic was suspected. When the first few cases were admitted to the St. Louis County Hospital, the nature of the febrile illness was not immediately appreciated, and many cultures of blood and spinal fluid were made, as well as many examinations of blood films for malaria plasmodia. These were all negative, and it was only after the first autopsy that the nature of the disease was definitely established. As the outbreak continued, similar studies were made on patients in hospitals with continued negative results.

This much negative information was available, therefore, when the investigation was centralized by the Metropolitan Health Council in the laboratories of the Departments of Medicine and Pathology of Washington University School of Medicine. At this time the investigation was planned on a more extensive scale, and cultures of brain tissue were also made on autopsies, and in addition a variety of animals were inoculated. Brain tissue was removed aseptically by removing the skull plate without touching the dura, wiping off the dura with alcohol, opening it with sterile instruments, and removing bits of brain with a second set of sterile instruments. For culture, this material was transported to the laboratory in petri dishes and emulsified in a mortar under a hood. It was obviously impossible, with this amount of manipulation, to avoid occasional contamination, but in spite of this difficulty no growth occurred in about half of the material studied, and bacteria, when present, were few in number and of such variety that no one organism could be suspected of having etiologic significance. Furthermore, no bac-

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teria were demonstrated in stained sections of tissue. It seems obvious, from the outcome of this work, that the presence of ordinary bacteria in the blood, brain or spinal fluid can be excluded from any etiologic rôle in this disease.

A number of animals were inoculated by various routes, but intracranial inoculation of brain tissue was practiced most frequently, the emulsions prepared as for culture and diluted to about 10 or 15 per cent being commonly used. Since most of these inoculations gave negative results, they will not be described.

The negative results in rabbits, while not on a very large scale, comprised the use of over thirty animals by various routes of inoculation, and seem significant in excluding herpes virus from an etiologic rôle, since from a number of these samples of tissue, another virus that appears to be the etiologic agent of the disease was isolated.

Glycerinated brain tissue from fatal cases was made available, so far as possible, to laboratories outside St. Louis that were interested in studying the disease.

The virus that appears to be the etiologic agent was isolated almost simultaneously by Muckenfuss, Armstrong and McCordock,[1] using rhesus monkeys, and by Webster and Fite,[2] using a strain of mice bred at the Rockefeller Institute, and peculiarly susceptible to the action of neurotropic viruses. Strains of virus isolated in these two laboratories were exchanged and found to be similar in their characteristics.

The disease in the two known susceptible animals will be briefly described:

Mice.—After the disease has been established in mice, passage in this animal is readily accomplished. In addition to the susceptible strain of Webster, Swiss mice and the stock strains of white mice available in the St. Louis area have been found to be uniformly susceptible.

Following intracerebral inoculation, the incubation period ordinarily varies between four and eight days and is most commonly five days. The animals then have ruffled fur, convulsions are common, and in a

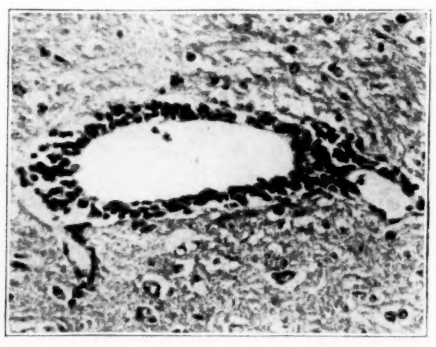

Fig. 1.—Perivascular accumulation of cells in brain of monkey.

short time they become prostrate and respiration is barely perceptible. Death may occur rapidly, or the animals may remain in this state for several hours, and it is exceptional for an animal to recover after developing definite signs of illness.

Histologically there are accumulations of round cells around the blood vessels of the brain, and there is destruction of nerve cells, most marked in the hippocampus and cornu ammonis. These changes are also observed in parts of the spinal cord.

Monkeys.—These animals are less susceptible than white mice, and maintaining the virus in them is difficult. Following the intracranial inoculation of brain emulsions from fatal human cases of encephalitis (these inoculations were usually repeated on the fifth

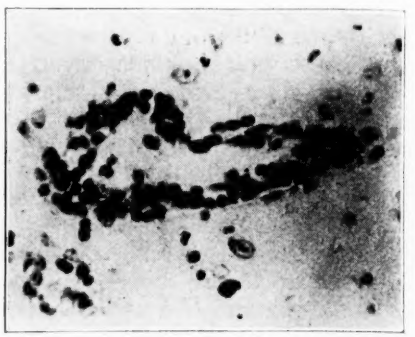

Fig. 2.—Perivascular accumulation of cells in brain of mouse.

day), the incubation period was ordinarily between eight and fourteen days. At this time the temperature gradually rose, and at the same time the monkeys became weak, and tremors appeared. The tremors were particularly noticeable when the animals climbed the sides of the cage, and some incoordination was usually evident. The majority of the animals were killed for passage while symptoms were present, so it is impossible to state the usual outcome of the disease in monkeys. Since some monkeys were permitted to recover, it is possible to say that the disease is not necessarily fatal.

At autopsy, the brains were usually markedly congested, and histologic study revealed changes consistent with those observed in the human disease; namely, perivascular cuffing, nerve cell degeneration, and focal collections of cells. These changes were present in the brain and upper portions of the cord.

CHARACTERISTICS OF THE VIRUS

Since mice are much more susceptible than monkeys, and since they are much more easily handled, the studies on the characteristics of the virus have been made with the use of mice. The virus is ordinarily active on intracranial inoculation in mice in a dilution of 1:1,000,000 of the mouse brain. Following intranasal instillation a somewhat larger dose is necessary for the disease to develop regularly. These two methods of inoculation are the only ones that have been found satisfactory for the production of the disease in these animals. The different strains of virus that have been isolated have been found to be similar in all essential respects so far as comparative studies have been made.

The virus has been reported by Webster and Fite[2] to be readily filtrable. Bauer, Fite and Webster[3] have filtered the virus through graded collodion membranes according to the method of Elford and have estimated the diameter of the virus particles to lie somewhere between 22 and 33 millimicrons.

The virus is neutralized by the serum of individuals convalescent from encephalitis in the 1933 outbreak and is not neutralized by the serum of normal individuals from uninfected areas.[2]

1. Muckenfuss, R. S.; Armstrong, Charles, and McCordock, H. A.: Pub. Health Rep. **48**: 1341 (Nov. 3) 1933.
2. Webster, L. T., and Fite, G. L.: Science **78**: 463 (Nov. 17) 1933.
3. Bauer, J. H.; Fite, G. L., and Webster, L. T.: Proc. Soc. Exper. Biol. & Med. **31**: 696 (March) 1934.

This test is carried out by incubating serial dilutions of the virus with undiluted serum and inoculating the serum-virus mixtures intracranially into mice. Evidence of protection is then detected by comparing the number of mice dying in the lots inoculated with virus incubated with normal serum with those inoculated with virus incubated with immune serum.

The virus is also neutralized by the serum of recovered monkeys or mice.

Webster and Fite [4] have also reported that mice which have been inoculated subcutaneously or intraperitoneally do not develop encephalitis but become immune as tested by intranasal or intracranial inoculation.

Comparison with other viruses has been reported by Webster and Fite [2] and by Cox and Fite.[5] They have reported absence of cross immunization with the viruses of herpes, vesicular stomatitis and equine encephalomyelitis.

Furthermore, serum collected from individuals recovered from epidemic (lethargic) encephalitis from one to ten years after the acute attack, poliomyelitis, Japanese encephalitis, and Australian-X disease did not neutralize this virus in the hands of Webster and Fite.[6]

SUMMARY

A number of strains of a virus that seems to be the etiologic agent of the 1933 epidemic of encephalitis were isolated in two different laboratories. This virus acts on monkeys and white mice and is distinct from other previously known viruses. The number of strains of similar characteristics isolated, and the neutralization of the virus by serum of individuals convalescent from encephalitis in this epidemic, but not by the serum of individuals recovered from other diseases, justify the conclusion that it is the etiologic agent of the recent epidemic.

THE SYMPTOMS AND DIAGNOSIS OF ENCEPHALITIS

(1933 ST. LOUIS EPIDEMIC)

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The type of encephalitis that was epidemic in St. Louis during the summer of 1933 differed materially from the popular conception of epidemic, or lethargic, encephalitis as heretofore observed in this country. Not only was there an unprecedented number of cases occurring within a short period of time and in a restricted geographic area, but the course and symptomatology of the disease were unlike those commonly observed in the older variety of encephalitis. In brief, the St. Louis cases were characterized by a rather sudden onset, with headache, high fever, stiff neck, mental confusion, tremors and other neurologic symptoms, but only occasional transient ocular manifestations. Following a stormy course, in most instances rapid improvement occurred, leading to apparently complete recovery within two or three weeks and leaving no residual effects. The present report is based on a study of the records of 786 hospitalized patients, and personal observation of approximately 400 such cases.

As the proportions of the epidemic grew, it soon became evident that there were apparently two distinct phases to the infection. The first consisted of symptoms of a general or systemic nature, and the second was characterized by evidences of invasion of the central nervous system. Among the systemic manifestations may be mentioned such complaints as extreme lassitude, malaise, chills or chilly sensations, griplike pains in the back or limbs, nausea or vomiting, and abdominal pains. Somewhat less frequently there were also photophobia, catarrhal conjunctivitis, sore throat and rarely other signs of a mild infection of the upper respiratory tract. As involvement of the nervous system became apparent there was usually fever, severe headache, stiff neck, mental confusion and tremors, with a host of irregular neurologic signs and symptoms depending on the localization of the pathologic lesions. Moreover, since the disease affected by preference the older adults, the symptoms were often modified, or partially masked by preexisting pathologic conditions in these individuals, such as senility, arteriosclerosis, chronic heart or kidney disease, or hypertension. Complications of this nature proved important factors in the prognosis, since the death rate was noticeably lower in children and in the younger, healthy adults.

Three distinct types of the disease were observed. In the purely encephalitic variety the symptoms referable to the central nervous system were evident from the very outset, often accompanied by certain of the systemic manifestations as well. In the second group the signs of a general infection without neurologic localization were present from one to four days or even longer before the encephalitic symptoms developed, suggesting a definite period of invasion of the disease. The third type was made up of the very mild and abortive cases, in which the symptoms were so indefinite that only the presence of an epidemic and the absence of any other explanation for the fever justified the lumbar puncture that was one of the chief diagnostic aids.

In the purely encephalitic or meningeal type of the disease, which was the commonest form observed, it was apparent at once that the infection involved the central nervous system. The onset was abrupt, with high fever, severe headache, neck rigidity, nausea and occasional vomiting, and usually somnolence, mental confusion, tremors, and difficulty in speaking. As a rule, the height of the disease was reached within the first twenty-four to forty-eight hours of the illness, but less frequently the onset was somewhat more gradual. During the same period, certain of the systemic manifestations were complained of as well and in a few patients, especially in children, convulsions occurred.

On physical examination, the commonest objective finding was rigidity of the neck or spine, and perhaps next in frequency was an absence of the abdominal reflexes, the latter vanishing early in the disease and returning with convalescence. In the majority of instances the Kernig sign was positive at some time during the course of the illness, but not always in the earliest phases of the disease nor in proportion to the amount of head retraction present. The tendon reflexes, such as the achilles and knee jerks, were inconstant, being oftener exaggerated than diminished. The

4. Webster, L. T., and Fite, G. L.: Science **79**: 254 (March 16) 1934.

5. Cox, H. R., and Fite, G. L.: Proc. Soc. Exper. Biol. & Med. **31**: 499 (Jan.) 1934.

6. Webster, L. T., and Fite, G. L.: Proc. Soc. Exper. Biol. & Med. **31**: 344 (Dec.) 1933; also references given in footnotes 2 and 4.

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plantar reflexes (Babinski, Gordon and Oppenheim) were extremely irregular and varied at different examinations in the same patient, but as a matter of fact almost all combination of pathologic reflexes were occasionally observed. The pupils, however, were usually small and equal, and they reacted well to accommodation although there was an occasional sluggish response to light.

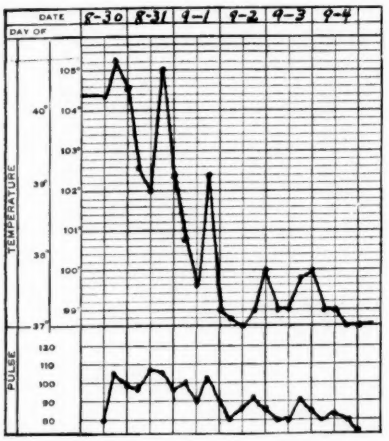

Chart 1.—Temperature of patient A. M., showing a typical curve.

In conjunction with the development of the meningeal symptoms, many patients showed definite evidences of a rapid impairment of the mental faculties. Some were completely disoriented as to time and place, others remembered their own names and ages but could not recall where they lived; many during convalescence had no recollection of lumbar punctures, the early part of their illness, or how they had come to the hospital. Moreover, the majority of patients showed a tendency to drowsiness or mental apathy, but rarely was coma so deep that the patient could not be aroused at least momentarily. In some instances, however, instead of lethargy there was excitement or mild delirium, and insomnia. At the height of the disease speech was often markedly affected, the impairment ranging from complete aphasia in a few to thick or slurred speech in others. Of equal significance was the appearance of moderately coarse or fine tremors, involving chiefly the hands, tongue and lips and persisting until well into the second or even the third week.

It is interesting to note that the striking ocular manifestations commonly observed in the ordinary epidemic, or lethargic, encephalitis were very rare. The most frequent complaint of this nature (present in about 14 per cent of the cases) was mild blurring of vision during the first day or two of the illness. Occasional instances of transient double vision, mild strabismus and nystagmus were observed, but ptosis was noticed only two or three times in this tabulation of 786 cases. Ophthalmoscopic examinations revealed no striking abnormality in the fundus.

Among the other symptoms noted were mild, transient vertigo in about one fourth of the cases, and more rarely definite ataxia. Slight degrees of exophthalmos were also observed a number of times, and in one patient this was most extreme. Deafness and ringing in the ears were infrequent complaints, disappearing within a few days. Hyperesthesias were common during the early phases, and a few patients developed facial paralysis or a spastic paralysis of one or more extremities, these more serious manifestations as a rule disappearing by the end of the third or fourth week. Retention of urine or incontinence of urine and feces were common and at times suggested a possible spinal cord lesion. Vomiting was rarely ever forcible or persistent.

In the typical case of encephalitis, the fever was highest in the first two or three days of the infection and then in most instances fell by rapid lysis, so that the normal was reached within a week or ten days of the onset. Occasionally, however, the fever persisted for a much longer period, even up to a month or six weeks, with an irregular pattern. Improvement in the general condition was noted as the fever subsided. The pulse was ordinarily proportional to the temperature, but it was not at all unusual to find a marked bradycardia and less commonly a tachycardia present.

Examination of the blood as a rule revealed a moderate degree of leukocytosis, usually between 12,000 and 20,000, but a number of exceptions to this were observed with normal counts and occasionally even pronounced leukopenia. The Schilling hemogram was also variable, the most frequent finding being a slight shift to the left. There was no apparent relation between the severity of the infection and the leukocyte count.

In all cases of suspected encephalitis the spinal fluid yielded valuable information. In encephalitis the fluid was clear, under slightly or moderately increased pressure, and showed an increase of cells, most of which were of the mononuclear variety. The average cell count was perhaps between 50 and 250 cells, but occasional counts of 500 or 600 were observed, and in one of our cases up to 1,100. In a few instances early in the disease the first cell count was normal and subsequent punctures showed the typical increase. Rarely, the first counts showed one-third or even one-half the cells to be polymorphonuclears, but later punctures usually exhibited the typical mononuclear preponderance. The spinal fluid sugar was normal or slightly elevated, and the globulin only moderately increased.

With regard to the type of encephalitis in which there was a definite stage of invasion, the chief interest lies in a study of these prodromal manifestations, since once the neurologic symptoms developed the clinical course was indistinguishable from that which has just been described. Such premonitory symptoms were almost entirely of a systemic nature—chills or rigors, neuromuscular pains, headache, nausea, photophobia, sore throat. The temperature was often quite high at the outset, perhaps 103 or 104 F., but within the next few days there was usually a marked amelioration of the symptoms and the temperature tended toward normal, so that the patient seemed to be definitely convalescing. This stage lasted as a rule from one to four days, or occasionally even a week or more, when suddenly the temperature rose rapidly, to 104 or 105 F., the headache became much more intense, and the typical picture of encephalitis developed, with neck rigidity, tremors, mental confusion, and so on. Cases of this nature were rather frequent, but no particular influence on prognosis was noted in patients exhibiting this variation from the usual picture.

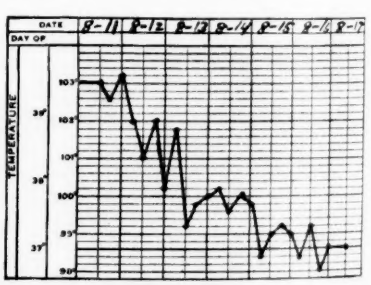

Chart 2.—Temperature of patient P. R.; note bradycardia.

Finally mild or abortive cases occurred, the chief symptoms being fever, moderate headache and perhaps

mild systemic manifestations. Occasionally, careful examination might reveal a suspicion of neck rigidity or slight tremors, but as a rule mental symptoms and abnormal neurologic signs were entirely absent. In the presence of an epidemic of encephalitis, with no explanation being found for the fever, diagnostic lumbar puncture was regarded as warranted, and the typical increase in mononuclear cells then revealed in the spinal

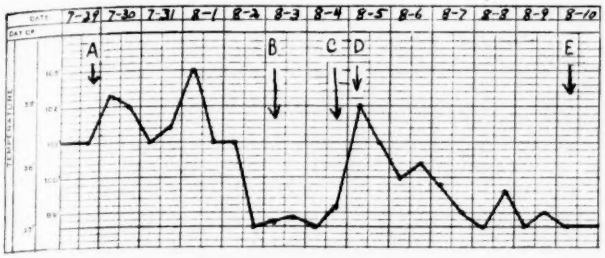

Chart 3.—Temperature of Mrs. M. S. during period of invasion: *A*, headache, myalgia; *B*, apparent recovery; *C*, mental confusion; *D*, coma; *E*, recovery.

fluid, thus substantiating the diagnosis of encephalitis. The course in such cases was usually brief, rarely lasting as long as a week.

DIFFERENTIAL DIAGNOSIS

During the period of invasion, before neurologic signs had developed, the illness was often diagnosed influenza, until the subsequent course and lumbar puncture corrected the error. Cases presenting chills, fever and no leukocytosis suggested the possibility of malaria, which was ultimately ruled out by the absence of the characteristic splenic enlargement, and of plasmodia in the blood smear, and the further development of the symptoms in encephalitis. Typhoid was simulated very closely at times, especially when the patient had a leukopenia and bradycardia. In typhoid, however, the onset is usually more gradual, the spleen is enlarged and soft, rose spots occur, and the blood culture and Widal test are valuable diagnostic aids. Moreover, there is an absence of stiff neck, the Kernig sign, and spinal fluid changes in typhoid. Delirium tremens may be much harder to rule out in patients with excitement and delirium. Hallucinations are much less frequent and somnolence commoner in encephalitis, and the fever in association with the neurologic signs in the latter usually prompts lumbar puncture, which reveals the typical increase in mononuclear cells. The two diseases may, however, be associated and produce a very puzzling picture. Encephalitis and tuberculous meningitis may at times be indistinguishable in the early stages. In tuberculous meningitis, however, the onset is ordinarily slower, the breathing often irregular, the course progressively downward to a fatal termination, and the tuberculin tests and roentgenograms of the chest may be suggestive. Moreover, the spinal fluid in tuberculous meningitis shows pellicle formation, marked increase in globulin, diminished or absent sugar content, and tubercle bacilli. Acute anterior poliomyelitis may exhibit symptoms and spinal fluid changes similar to encephalitis, but in poliomyelitis the sensorium is usually clear, speech is unaffected, and blurred vision, vertigo and pathologic plantar reflexes are rare, whereas they are relatively frequent in encephalitis. The characteristic flaccid paralysis of various muscle groups that occurs in poliomyelitis is also quite different from the spastic extremities occasionally observed in encephalitis.

Finally, differentiation from other forms of encephalitis may present difficulties. In the so-called lethargic type there is no fever, ordinarily a more gradual onset, ophthalmoplegias, parkinsonism, and a chronic course, new symptoms appearing months after the onset, and often leaving residual manifestations. But in the acute disseminated encephalomyelitis or so-called postinfectious encephalitis associated with measles, mumps, vaccinia, varicella, and the like, the symptoms may be so similar as to make differentiation impossible except by the history or, in fatal cases, by autopsy. It seems probable from the preliminary studies on the blood of recovered patients in St. Louis that the presence of neutralizing substances for the encephalitis virus may be utilized for differential diagnosis in such cases, at least after recovery has taken place.

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[EDITORIAL NOTE.—The four preceding papers, together with the four papers by Drs. McCordock, Collier and Gray, Dr. Eschenbrenner, Drs. Bredeck and Zentay and Dr. Jones, to appear next week, constitute a symposium on epidemic encephalitis, with particular reference to the St. Louis epidemic of 1933. The discussion will follow the papers to be published in the next issue.]

BREAST AND ARTIFICIAL FEEDING

INFLUENCE ON MORBIDITY AND MORTALITY OF TWENTY THOUSAND INFANTS

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There is no question that the artificial feeding of infants has taken remarkable strides in the past few years. It has had such success that in the minds of many physicians and perhaps a large proportion of the public there has grown up the idea that artificial formulas can safely replace breast milk without any detrimental results to the child. So far as we know, this has been based on empirical observations and has not been supported by sufficient evidence to be regarded as in any way proof. Although in the past few years many accessory foodstuffs have unquestionably been discovered, notably vitamins, which are necessary for life, and it has been discovered also that in many instances the inorganic materials were of far greater importance than had been suspected, one cannot be at all certain that all the elements which go to make up a perfect food have been discovered. More than likely many are not known. Nor can one be sure, from present knowledge, of the quantity of each of the known elements necessary for an ideal food for an individual.

Some may state that breast milk is not an ideal food, and this will have to be admitted to be the case in a few instances; but these cases may be regarded as pathologic rather than physiologic. One has no right to assume, however, that one food is better than another simply because it is nature's own food, because in the individual instance there may be a reason why this pabulum is not ideal.

Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

There are probably many standards by which one may judge the effect on the organism of the food offered it. It may certainly be said that weight alone is by no means the only criterion by which a food's value may be judged. Other physical qualities, such as blood, tissue turgor or bone development, may be regarded as of importance. The child's resistance to infection may also be looked on as one of the chief

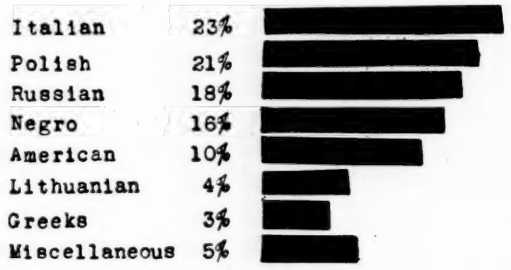

Chart 1.—Nationality.

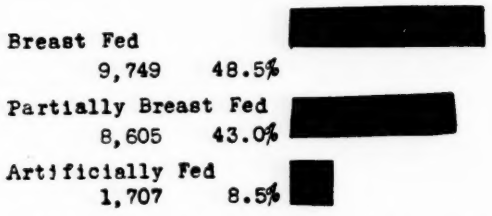

Chart 2.—Total number of cases, 20,061, classified according to type of feeding.

means by which one may judge of the effectiveness of the food offered. Many years ago Czerny and Keller emphasized this point, and in experiments with vitamins of recent date this point has again been brought out.

It seemed to us, therefore, that it would be of value to survey a large number of infants as to the incidence of infection and other disturbances allied to it with respect to whether they were fed with breast milk or artificially.

MATERIAL

The material contained in this series of cases consists of records taken from 20,061 babies who were under the care of the Infant Welfare Society of Chicago for as long as nine months during the years 1924-1929 inclusive. These represent all such babies that were under the care of the welfare society for that length of time. The Infant Welfare Society of Chicago has been in existence for nearly twenty-five years. It has stations in the poorest sections of the city and shares with the city health department the care of indigent infants and children of the city so far as infant feeding and care are concerned. The nationality of the group studied is shown in chart 1.

The medical supervision of these children consisted in a visit to the clinic station and an examination and feeding instruction by the station doctor at least once a month. Infants suffering from any disorder or disease are seen as frequently as the station doctor thinks advisable. The nurse visits the home within a week after the child is first brought to the station and gives the mother advice regarding the nursing of her child or the preparation of the formula. Thereafter the nurse makes home calls as often as is deemed necessary. During the period under discussion this was at least once a month. Whenever the child is sick, the parents notify the station and the nurse visits the child. If the situation warrants it, the child is referred for medical attention. Thus a very close check is kept on the child's physical condition; the nurse, of course, is witness to its care.

As to the feeding of these children, the following were in general the methods used. Very rarely was there much deviation. In the first place, every attempt was made to keep the child on the breast for the first ten months. When this was not possible, complementary feeding was resorted to. The formula here was very much the same as that used for artificial feeding. The artificial feeding that was recommended in all instances was cow's milk (boiled five minutes) 1½ ounces to the pound of body weight; water was added to make a fluid content of from 2½ to 3 ounces to pound weight, and one-tenth ounce of cane sugar to the pound weight was then added. The latter was restricted to not more than six teaspoonfuls in twenty-four hours. Accessory foods were added as follows: Orange juice, beginning with a half teaspoonful in twenty-four hours at 4 weeks, increasing to eight teaspoonfuls at 5 months. Cod liver oil, beginning with ten drops in twenty-four hours at 6 weeks, increasing to three teaspoonfuls at 5 months. Cereal was added at 5 months, vegetable at 6 months and the second cereal at 8.

There were 20,061 cases studied for nine months in this group. There were 9,749, or 48.5 per cent, infants entirely breast fed, with accessory feedings added. There were 8,605, or 43 per cent, that were partially breast fed with accessory feedings added and 1,707, or 8.5 per cent, that were artificially fed (chart 2).

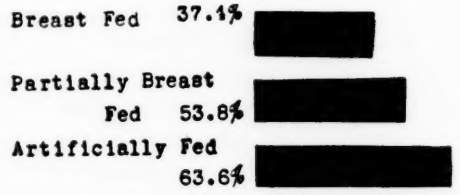

Chart 3.—Total infections.

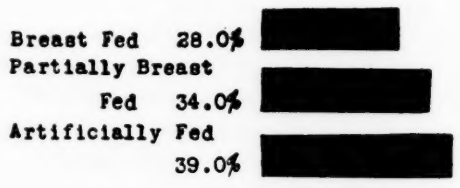

Chart 4.—Respiratory infections.

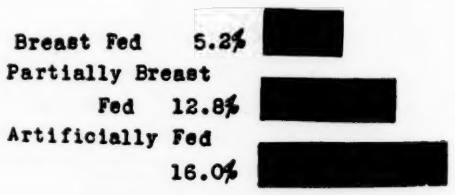

Chart 5.—Gastro-intestinal infections.

MORBIDITY

In the study of morbidity, any note on the chart that indicated any feeding disturbance, cold or respiratory infection or other infection, is classified as an infection. These were divided into three main groups: respiratory, gastro-intestinal and unclassified infections.

There were 3,646 infants in the breast fed group with infections, or 37.4 per cent. There were 4,629 infants with infections in the partially breast fed group, or

53.8 per cent, and 1,085 infants with infections in the artificially fed group, or 63.6 per cent (chart 3).

There were 2,729, or 28 per cent, of the breast fed infants that suffered from a respiratory infection of some type. In the partially breast fed group there were 2,925 infants, or 34 per cent, that had respiratory infections, and 665 infants, or 39 per cent, of the artificially fed (chart 4).

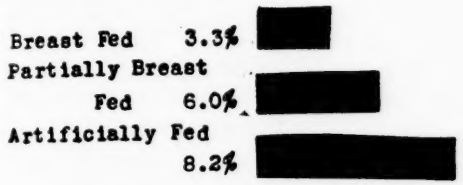

Chart 6.—Unclassified infections.

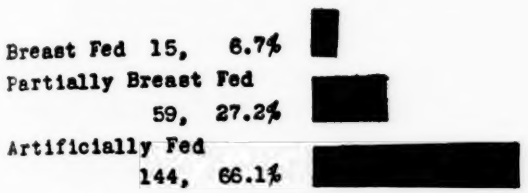

Chart 7.—Total deaths (218, or 1.1 per cent).

In the gastro-intestinal disorders there were 505 infants in the breast fed group, or 5.2 per cent. In the partially breast fed 1,101 infants were affected, or 12.8 per cent, and in the artificially fed 273 infants, or 16 per cent (chart 5).

In the unclassified infections there were 322 infants in the breast fed group, or 3.3 per cent; 516 infants in the partially breast fed, or 6 per cent, and 139 infants in the artificially fed, or 8.2 per cent (chart 6).

MORTALITY

There were 218 deaths during the five year period, giving a total mortality of 1.1 per cent, or eleven deaths per thousand. Of the infants that died, there were 15, or 6.7 per cent, in the breast fed group, 59, or 27.2 per cent, in the partially breast fed group, and 144, or 66.1 per cent, among the artificially fed (chart 7).

There were 130 of the infants, or 60 per cent, that died from respiratory infections. Of this number four, or 3.3 per cent, were in the breast fed group, forty-four, or 34.6 per cent, in the partially breast fed group, and eighty-two, or 62.1 per cent, among the artificially fed (chart 8).

Twenty-two of the infants, or 10 per cent, died from gastro-intestinal disturbances. Of these two, or 9 per cent, were in the breast fed group, six, or 27.3 per cent, in the partially breast fed group, and fourteen, or 63.7 per cent, among the artificially fed (chart 9).

Sixty-five of the infants, or 30 per cent, died from unclassified infections. Of these seven, or 12 per cent, were in the breast fed group, twenty-five, or 36.8 per cent, were in the partially breast fed group, and thirty-three, or 51.2 per cent, were in the artificially fed group (chart 10).

RESULTS

These figures do not need any particular explanation or discussion. It will be observed that in every instance, from the point of view of feeding, breast feeding gives a much greater immunity to infections than artificial feeding. It is shown that even a partial breast feeding gives considerable immunity.

Roughly it shows that, baby for baby, the breast fed infant will have a 50 per cent better immunity than one that is artificially fed.

Among the gastro-intestinal disturbances there were twice as many disturbances in the partially breast fed as in the totally breast fed, and three times as many in the artificially fed as in the totally breast fed. The same proportion is true in the unclassified infections, while in the respiratory infections the discrepancy was not so marked. Still, there is a distinct difference between the breast and the artificially fed infants. These differences, however, in the three classifications are not nearly of the same significance as the difference shown in the mortality statistics. The general mortality was ten times greater in the artificially fed than in the breast fed. The partially breast fed had four times the mortality of the totally breast fed and only one-third that of the artificially fed.

In the respiratory disturbances it is shown that, while the breast fed baby has a morbidity of 10 per cent less than the one artificially fed, the mortality is only one-twentieth as high, while even the partially breast fed infant has ten times the breast fed mortality and only half that of the artificially fed. In the gastro-intestinal disturbances the breast fed mortality was 9 per cent, while the artificially fed baby had seven times the mortality and the partially breast fed three times. In the unclassified infections the mortality of the partially breast fed was three times that of the breast fed and the artificially fed four times.

It must be remembered that the years 1924 to 1929 were the years of plenty. Undernutrition does not enter into the picture. Here are 20,000 infants that

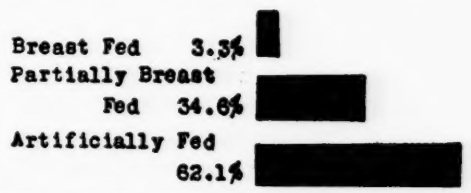

Chart 8.—Deaths from respiratory infections, 60 per cent.

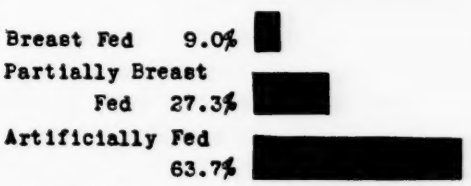

Chart 9.—Deaths from gastro-intestinal infections, 10 per cent.

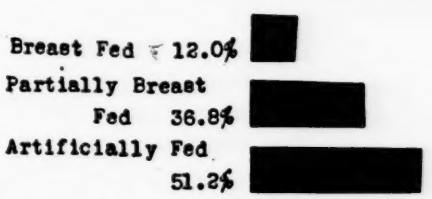

Chart 10.—Deaths from unclassified infections, 30 per cent.

represent a true cross section of the national urban life. It cannot be said that these are uncared for slum babies, because the general mortality was only 11 per thousand, or less than one fourth of the infant mortality of the same region; yet in 8.5 per cent of these 20,000 babies was 66 per cent of the total mortality. If the artificially fed babies are taken from the total, the mortality is only 4 per thousand, and if only the breast fed are considered it is only 1.6 per thousand.

Obviously, therefore, if one hopes to decrease further the infant mortality of this country it must be done by encouraging breast feeding.

CONCLUSION

In a study covering 20,061 infants from birth to 9 months during the years 1924-1929 inclusive, 48.5 per cent were totally breast fed, 43.0 per cent were partially breast fed, and 8.5 per cent were artificially fed. The total morbidity of the breast fed group was 37.4 per cent, of the partially breast fed group 53.8 per cent, and of the artificially fed group 63.6 per cent. The average mortality of these infants per year was 1.1 per cent. Of this mortality 6.7 per cent were in the breast fed group, 27.2 per cent in the partially breast fed group, and 66.1 per cent among the artificially fed.

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ABSTRACT OF DISCUSSION

DR. FRANK C. NEFF, Kansas City, Mo.: From the results of this survey it is evident that breast-fed babies have a better chance against infection. Therefore it is advisable to make every effort to maintain breast feeding from the first days of life. Dr. Dwyer and I presented a joint paper two years ago on the subject of feeding in the obstetric nursery. For a period of two years at the University of Kansas Hospital we had followed the usual custom of trying to make the baby regain its birth weight by the time it was 10 days old. To do this the child was bottle fed in addition to breast feeding. That is the custom in most nurseries of private hospitals. It is difficult to insist on breast feeding because nurses and physicians are eager to have the infant show the greatest possible gain. In the last two years we have undertaken an experiment, while measuring all the breast milk that every infant gets during the stay in the nursery, to see how many infants can be sent home on the breast alone. In our hospital the control of the nursery feeding is centralized. A much greater percentage are being breast fed; the next best thing to do is to keep infants on mixed feeding and to see that complemental food does not displace the breast feedings. We have found that it is possible for the baby to have mixed feeding without any great diminution in the amount taken from the mother's breasts, if it is assumed that the mother will be given every chance to maintain her supply.

DR. PAUL H. HERRON, Spokane, Wash.: In compiling these statistics it took three of us between two and three years' time. This paper is not based on a selected group of cases but represents every case seen by the infant welfare doctor for a period of nine months. No case is included in the report that was not seen for this length of time. The nationalities as shown were varied. Some of the infant welfare stations represent Italians almost entirely, others Russians, and so on. I wish to reemphasize the fact that this is probably the reason we found such a high incidence in our breast-fed infants. In private practice we do not get 48 per cent of breast-fed infants. All breast-fed infants are fed five times a day, every four hours, after they reach about 8 pounds (3.6 Kg.). They are fed this way until they attain the age of 10 months. All artificially fed and partially breast-fed infants receive as complemental feedings milk, water and sugar. Very few of the earlier infants received dextrose or other carbohydrate additions, and a few received milk additions other than cow's milk, but these were almost negative. I hope that we can present the factual evidence that, after all, breast milk is the ideal food to be used in the feeding of infants.

DR. JAY I. DURAND, Seattle: There is no question that breast milk is as good a food or is the best food that has ever been devised, but I doubt whether the statistics presented represent the state of affairs that would be obtained if artificial feeding was properly carried on, and if one had an intelligent mother and nurse to prepare the feedings. In the first place, these are statistics of 1924 to 1929, and artificial feeding today is a very much more successful procedure than the artificial feeding of ten years ago. In the second place, I have statistics from another source quite as valuable as the ones presented today. Twenty years ago I worked for six months with Finkelstein and Meyer in the orphanage in Berlin. Three years ago I went back and spent considerable time there. In that institution there are 600 infants admitted a year, most of them soon after birth. Twenty years ago breast milk was provided in all of the bad cases, and thirty or more wetnurses who fed 100 babies were kept in the institution. Three years ago all the wetnurses were dismissed and all babies were fed artificially. Twenty years ago the mortality in the Waisenhaus was about 14 per cent; three years ago the mortality was 2.5 per cent, and during that time breast milk feeding had been discontinued. Breast milk is the safest food and the most fool proof. If one's mothers are from the slum districts, only 10 per cent of them American, the statistics will show a great advantage for breast feeding, but with intelligent mothers and capable direction from pediatricians as to the food, I do not think that the mortality today is higher on artificial food than it is on breast milk. Dr. Faber of San Francisco compared the mortality and morbidity for several years in a group of cases cared for in the Stanford outpatient department. He tried to get 100 breast-fed babies and 100 artificially fed but never could get quite the 100 exclusively breast fed. Dr. Faber followed these cases over a three year period and found that the bottle-fed children had as little illness and grew quite as well as those fed by the mothers.

DR. BERTHOLD FLEISCHMANN, New York: I want to agree with almost everything that Dr. Durand has said. I too have been fortunate, as he, in having been to the Finkelstein asylum. At the time I was there, some eight years ago, they also had a system of wetnurses, and it still was being continued in some cases but not in all as previously. I want to make one remark regarding the cases presented here. In private practice the morbidity is less than in dispensary practice, for the reason that the level of intelligence in the home is greater, and often the question of the size of the family is important, as to the amount of care the child gets.

DR. CLIFFORD G. GRULEE, Chicago: There are several ways in which one can look on such statistics. It seems to me that one must gage them largely from the question of the general good. It is much simpler both for a well-to-do patient and for an indigent patient to nurse the baby at the breast. The propaganda that has gone out in the last few years, by no means wholly from the profession but largely over the radio, has tended to belittle the good that one gets from breast feeding. Dr. Neff's point is that the determination of breast feeding is made largely in the first two weeks of life. If the child goes out of the hospital artificially fed it never gets breast milk again, and the most that can be said is that it has lost a definite advantage in the fight for life, because it is extremely hard to feed a baby properly in the first two weeks of life. Some of them go along beautifully; a great many of them do not. Dr. Durand's idea that these statistics cannot be carried into private practice is perfectly correct. There is nothing like the same morbidity or mortality in private practice that there was among these cases. The mortality among these infants was just about one fourth of the general mortality in the same region, so that we did not have an excessive mortality. The difference in mortality in Finkelstein's Orphan Asylum would probably have been more marked had he employed wetnurses at the present time. The difference is not a difference in mortality from gastro-intestinal disturbances; it is a difference in mortality from infection. Mortality in infections in the last few years, especially of respiratory infections, has been far above anything that occurred from gastro-intestinal disturbance. Such statistics as he offers in regard to infants in an orphan asylum are not comparable to those which we have had here. A point has been reached in combating infant mortality which compels one to take a somewhat different standpoint. No inroads to amount to anything have been made on the infections that occur in children and cause so many deaths, especially respiratory infection. That peak still holds and is not much reduced. It has not been possible to carry by direct assault, and so indirect methods must be resorted to. This group is of importance because these chil-

dren were exposed to infections far more than the average group in better households. They were members of families of five or six children attending school and likely to bring back infections. To reduce infant mortality, that group must be protected. I do not know at the present time of a better method than by promoting breast feeding. In the last five or ten years quite a little has been learned about infant feeding, but I do not believe that there is any food for artificially feeding infants comparable to breast milk, and I have yet to be shown by statistics that that is true. I want to call attention to the fact that one cannot draw conclusions from 100 or 200 cases.

ALCOHOL AND AUTOMOBILE ACCIDENTS

HERMAN A. HEISE, M.D.
MILWAUKEE

That the problem of controlling the drinking driver and pedestrian is far from being solved may be due, in part, to the fact that no accurate statistics are available regarding the relationship of alcohol to automobile accidents, as well as to the fact that the diagnosis of drunkenness is, to a great extent, still made through unreliable physical observations.

TABLE 1.—*Analysis of 119 Consecutive Automobile Accidents*

	Number of Accidents	Injured	Killed
Alcohol	74	155	10
Alcohol less than 0.02 per cent	45	44	7

TABLE 2.—*Sex of Driver*

	Male Drivers	Female Drivers
Alcohol	73	1
Alcohol less than 0.02 per cent	41	4

TABLE 3.—*Type of Accident*

	Number of Accidents		Number Injured		Number Killed	
Type of Accident	Alcohol	Alcohol Less Than 0.02%	Alcohol	Alcohol Less Than 0.02%	Alcohol	Alcohol Less Than 0.02%
Ran off road or upset	31	15	60	24	7	1
Collision	21	9	64	14	1	1
Pedestrian struck	23	19	20	17	2	5
Miscellaneous	1	..	1	..	..	..

In a previous paper [1] the chemical test for alcohol in body fluids has been shown to be specific and a practical method for confirming a diagnosis of drunkenness, thus aiding in the conviction of drunken drivers.

In the present paper a further study has been made of the subjective and objective symptoms due to a consumption of alcohol correlated with the chemical examinations, and an analysis of 119 automobile accidents involving injury or death to 216 persons has been made in an effort to obtain a closer estimate of the rôle that alcohol plays in these accidents.

In order to demonstrate the effect of small amounts of alcohol, subjects were each given 30 cc. of whisky and both subjective and objective symptoms were recorded. Controlled typewriting experiments were used as a measure of efficiency. All subjects in this group suffered a measurable loss of efficiency, generally gaining increased speed at the expense of accuracy, although the alcohol in the urine did not exceed 0.02 per cent. It should be borne in mind that 0.02 per cent alcohol in the urine or blood was the limiting value

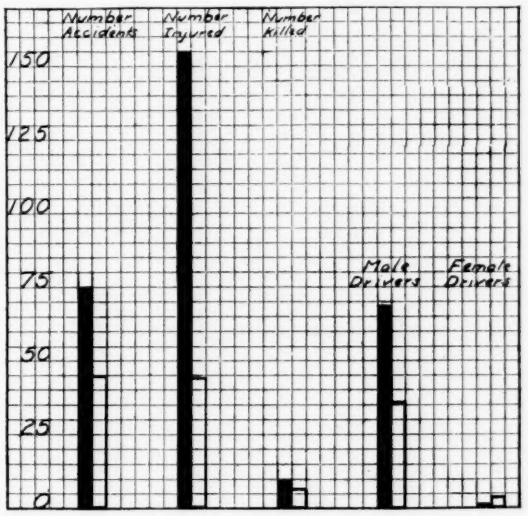

Chart 1.—Analysis of 119 automobile accidents: In the charts black represents alcohol; white, less than 0.02 per cent.

used in the "alcohol accidents" in the analysis given later.

A second series of experiments was performed under actual driving conditions, incidentally making use of the device to measure the time elapsing between a signal and the application of the brakes that has been described in a previous paper.[2] In these experiments a larger amount of whisky, namely, 150 cc., was given. With no exceptions these subjects were able to pass creditably the ordinary tests used to determine drunkenness and were able to perform adequately the routine actions

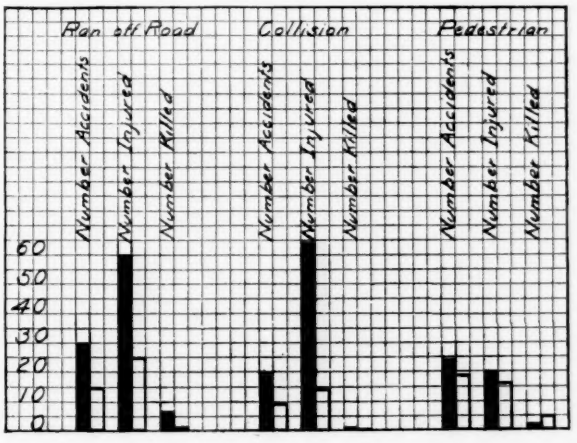

Chart 2.—Type of accident.

involved in driving. However, there was a definite variation from the normal in actions that had not become a habit, such as avoidance of obstacles placed in the road, backing the car, which was poorly and inaccurately accomplished, and the substitution of an unusual action for one that was normally used (such as using the hand brake rather than the foot pedal).

From the Columbia Hospital.
Read before the Section on Miscellaneous Topics, Session on Forensic Medicine, at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

1. Heise, H. A.: The Specificity of the Test for Alcohol in Body Fluids, Am. J. Clin. Path. **4**: 182 (March) 1934.

2. Heise, H. A., and Halporn, Benjamin: Medicolegal Aspects of Drunkenness, Pennsylvania M. J. **36**: 190 (Dec.) 1932.

All subjects admitted disorientation and either depression or exhilaration. Reaction times were somewhat increased and all subjects displayed a lack of appreciation of changes in judgment and motor control. The alcohol percentage in these individuals did not exceed 0.10.

These experiments are cited to illustrate the lowered efficiency of the alcohol consumer and, incidentally, offer added evidence that it is not primarily the obvious "drunk" who constitutes a major road menace but the man I have termed the "drinking driver" and with whom this series of cases is largely concerned.

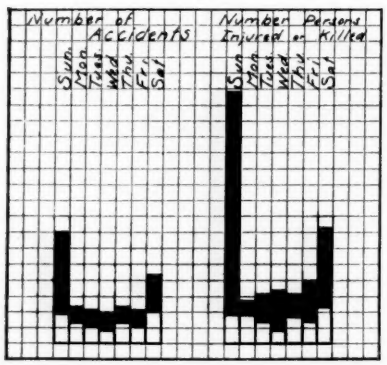

Chart 3.—Accidents according to the day of the week.

Table 1 is an analysis of 119 consecutive automobile accidents in all of which the victims required hospital treatment. All but two were treated in the Uniontown Hospital. As Uniontown is a city of 20,000 population, situated on the National Highway in southwestern Pennsylvania, this survey comprises a fair distribution of urban, rural and tourist traffic accidents.

Not only were the "alcohol accidents" more numerous than those not involving alcohol, but they were responsible for injury or death to more than two people per accident, while the nonalcohol accidents involved slightly more than one person per accident.

Further investigation along this line may furnish the explanation for the fact that women drivers are involved in fewer accidents than would be expected from the known ratio of the number of women drivers to men drivers. A surprising fact, however, is that the five women drivers were involved in three fatal accidents. The most important observations expressed in tables 1 and 2 are shown graphically in chart 1.

The data in table 3 are shown graphically in chart 2.

In cases in which the car ran off the road or was upset, the average percentage of alcohol in the blood

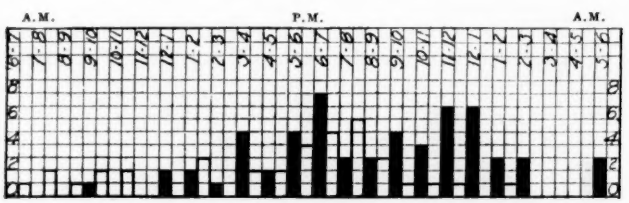

Chart 4.—Accidents according to the time of the day.

or urine in the alcohol cases involving injury was 0.15 while the average alcohol percentage in the fatal cases was 0.24.

In cases of collision, the average percentage of alcohol was 0.21.

In accidents to pedestrians the alcohol average for drinking drivers was 0.14 per cent and for drinking pedestrians was 0.20 per cent.

There is a direct relationship between the severity of the accident and the amount of alcohol.

Three of the pedestrians in the age group from 16 to 60 years (table 4) were hit by unapprehended "hit and run" drivers.

In this series the drivers who struck children or old people were in most cases sober. The largest number of accidents in this group involves the drinking pedestrian.

Table 5 shows that in this series a driver with normal alcohol in the blood and urine usually had sober people in his car and that those who had a high percentage of alcohol had passengers who were about equally

TABLE 4.—*Analysis of Pedestrian Accidents with Reference to Age*

Age Group of Pedestrian	Alcohol Less Than 0.02%	Driver Alcohol	Pedestrian Alcohol	Both Alcohol
4 to 15 years	8	1	0	0
16 to 60 years	5	3	15	1
61 to 81 years	6	0	2	2

TABLE 5.—*Alcohol Found in Drivers and Passengers*

Amount of Alcohol in Driver, per Cent	Amount of Alcohol in Passenger, per Cent
0.32	0.22
0.017	0.027 0.012
Drunk; no specimen	0.28
0.09	0.09
0.004	0.011
0.004	0.003
0.005	0.004
0.020	0.017
0.018	0.013 0.04 (♀)
0.16	0.24
0.25	0.28 0.10 0.01 0.18 0.003 (♀) 0.01 (♀)
0.23	0.05 (♀)
0.23	0.013 0.012 (♀)
0.23	0.21
0.003	0.003
0.003	0.005
0.020	0.012
0.02	0.00 0.03 0.01
0.16	0.13 0.03
0.003	0.003 0.003
0.14	0.13
0.20	0.36
0.17	0.40
0.003	0.003 (♀)
0.003	0.003
0.04	0.13 0.07 (♀)
0.35	0.36
0.004	0.004 (♀) 0.040 (♀)

TABLE 6.—*"Hit and Run" Drivers Showing Incidence of Alcohol*

Case	Driver	Alcohol, per Cent
1	Not caught	....
2	Caught	0.28
3	Caught	0.29
4	Not caught	....
5	Caught	0.21
6	Caught	0.38
7	Caught	0.37
8	Caught	0.28
9	Not caught	....

"high." Possibly a sober man will not be a passenger when his host is intoxicated.

Chart 3 reveals that increased traffic alone is not the chief cause of week-end accidents. The unmistakable rôle of alcohol is demonstrated by the tremendous week-end peak in the "alcohol accidents," while the others increase but slightly. It will be noticed that while the ratio of "alcohol" to "nonalcohol" accidents on Sunday is almost three to one, the number of persons injured or killed is almost eight to one. On week days no such disproportion is noted.

That darkness is associated with a definite driving hazard is shown by the increase of "nonalcohol" accidents during the early evening hours. An additional

factor may be fatigue, the effects of which are very similar to alcoholic intoxication. The imbiber, however, reaches a much higher peak between 6 and 7 p. m., which is probably the result of the "cocktail hour," and another peak at midnight. In the daylight morning hours almost all accidents are of the nonalcoholic type.

Table 6 shows nine consecutive accidents involving "hit and run" drivers and all are remarkable for the high percentages of alcohol. It is possible that alcoholic intoxication adds an additional factor of fear of apprehension, or the alcohol may make capture easier, as in one case in which zigzag tracks in the snow made by the car wheels led from the scene of the accident.

SUMMARY AND CONCLUSIONS

1. Experiments indicate a measurable loss of efficiency and judgment, even when small amounts of alcohol are accumulated in the blood or urine.

2. Considering a person sober as long as he can still walk and talk is responsible for the small value of present day statistics regarding the relationship of alcohol to automobile accidents.

3. By analyzing consecutive accident cases involving injury and death, it is possible to throw light on the high incidence of week-end accidents and night accidents, and the surprising preponderance of accidents in which male drivers are concerned.

4. In this series the drinking pedestrian was concerned with many accidents; in most cases a child or old person was struck by a sober driver.

5. It is recommended that the chemical test for alcohol, which has been proved to be practical in confirming drunkenness and thus aiding in the conviction of drunken drivers, be adopted universally, at least to confirm the observations obtained by physical examination.

ABSTRACT OF DISCUSSION

DR. ALEXANDER O. GETTLER, New York: I was interested to hear Dr. Heise say he gave alcohol to individuals, put them in automobiles and watched them drive; very interesting experiments. In New York we are not permitted to conduct such experiments. I should like to ask Dr. Heise how he obtains permission for experiments of this kind.

DR. WILLIAM D. MCNALLY, Chicago: I should like to ask Dr. Heise if he has any statistics on how many accidents occurred before prohibition, during prohibition and after prohibition. As an observer of drunkenness, I find that more drunkenness has existed since prohibition has been repealed. I wonder if we have more accidents.

PROF. R. N. HARGER, Indianapolis: I should like to ask Dr. Heise what he called an alcoholic person, whether he used any quantitative figures. I consider this a very important paper and I believe more data are needed on the correlation between the level of alcohol in the body and the degree of intoxication. I am interested that he has confirmed the work of Miles and others to the effect that low blood alcohol figures varying say from 0.5 to 1.5 parts per thousand, which were previously felt not to be dangerous, may really be a menace to the public.

DR. H. A. ROTHROCK JR., Bethlehem, Pa.: I should like to ask Dr. Heise if he has any data in relation to the hit and run driver and also as to the condition of the alcoholic state of the other passengers in the automobile.

DR. CHARLES NORRIS, New York: In 1926 a compilation of statistics revealed that the alcoholic deaths of pedestrians who were run over (the cases were all taken from Manhattan) represented about half the number of automobile deaths in the greater city. Between 22 and 25 per cent of those who were run over and died were 3 or 4 plus; namely, they were intoxicated at the time of death.

DR. W. C. WOODWARD, Chicago: I should like to call attention to the importance of maintaining the differentiation between the meanings of the term "intoxication" and the term "drunkenness." There is danger of falling into the confusion that has existed with respect to the meaning of the term "insanity." Drunkenness is distinctly a social and legal condition. Intoxication is not; it is a biologic or physiologic or pathologic condition. While chemical tests can prove that a man is intoxicated they cannot prove that a man is drunk. They are, as Dr. Heise has pointed out, only valuable confirmatory evidence.

DR. HERMAN A. HEISE, Milwaukee: Regarding Dr. Gettler's inquiry as to how consent is obtained to experiment on drunken drivers using city streets: The mayor set aside a certain part of the city of Uniontown and had it patrolled by police. We could drive back and forth to our hearts' content and shoot the guns in the city limits, the guns marking the length of time between the impulse and the application of the brakes. Regarding the number of accidents before and after repeal, there seems to be a slight increase in the number of accidents after repeal over the number before. No definite amount of alcohol in body fluids has been officially designated above which a person is intoxicated and below which he is sober. For this survey I have arbitrarily chosen 0.02 per cent as the dividing line, since it clearly designated the drinking driver, and experimental evidence indicated psychologic inferiority. As to intoxication and drunkenness: I wouldn't use the term "drunkenness" in court. It simply causes trouble. Alcoholic intoxication means "under the influence of alcohol." If a certain amount of alcohol is found and that person has acted abnormally because of alcohol, I think one can state definitely that this person is "under the influence."

SOME NEWER CONCEPTIONS OF URINARY STONE FORMATION

J. DELLINGER BARNEY, M.D.
AND
E. ROSS MINTZ, M.D.
BOSTON

This communication concerns itself primarily with a discussion of hyperparathyroidism as a cause of urinary calculi. In the course of our remarks, certain other possible etiologic factors will be dealt with.

Next perhaps to malignant disease, urinary lithiasis presents one of the most difficult problems confronting the urologist. Until this question is answered he finds himself occupied in the more or less unproductive occupation of discovering and removing stones from the kidney, ureter or bladder. We do not hesitate to say that no hypothesis as to etiology yet presented can be defended from every line of attack, nor does it matter that certain experimental studies have resulted in stone formation. What may be true in the laboratory does not necessarily follow in the clinic. Even parathyroid disease, which is found to be the apparent etiologic factor in at least 10 per cent of cases, brings up questions that in the present state of knowledge cannot be answered.

It will be impossible for us to discuss and summarize the vast literature of urinary lithiasis. Until recently it was based only on clinical observation, theorization and empiricism. Only in the past ten or even five years has anything been done by investigators with the lamp of modern biochemistry and physiology to light their path. Even with the progress that has now been made it is obvious that the knowledge of neither the biochemist nor the physiologist is such that he can explore

From the Urological Department, Massachusetts General Hospital.
Read before the American Association of Genito-Urinary Surgeons, Hot Springs, Va., May 15, 1934.

the even more complicated problems that have already arisen.

In the light of the work of Keyser, Joly, Higgins, Hinman, McCarrison, Randall, Holmes, Coplan and others, to mention only a few, we have nothing new to add except our experience with hyperparathyroidism. We do feel, however, that long continued and intensive clinical observation, careful reading of the literature, and intimate contact with our colleague Albright, who has done epochal work, enable us to express views that will at least provoke further discussion.

Before going on to a consideration of the etiologic importance of the parathyroid gland, we wish briefly to touch on other possible factors in the production of stone. We believe with others that the colloids of the urine play an important rôle and that whatever "brings about imbalance in the solvent capacity of the protective colloids" [1] may result in crystalline deposits. Keyser seems to feel that, at least in the formation of the so-called primary stones without infection, "some error of metabolism" occurs. In addition to this there would appear to be some disturbance of the normal physiologic function of the kidney that induces the formation of stones in one organ rather than in both. If infection occurs in the presence of a stone in an acid urine, especially by a urea-splitting organism, changes may be expected in the character of the stone, one layer or the nucleus itself being that deposited in the presence of the acid sterile urine, and another being laid down by the infected alkaline urine. It seems to be a fact that the chemical character of the stone which occurs in or as a result of infection is very different from that in a clean and acid urine. Yet one must not forget that in various reported series of renal stones, some of them of the so-called secondary variety, investigators have found a persistently normal uninfected urine in from 10 to 20 per cent of cases.

When the various dietary and vitamin deficiencies are considered, so much contradictory evidence is found, both clinical and experimental, that in the present state of knowledge it is impossible to draw any accurate conclusions. That these deficiencies are of some, if not great, importance, no one can deny; nor can it be denied that their geographic distribution is of significance. A great deal of most intensive study must yet be brought to bear on these phases of the situation before it will be known how to interpret their meaning.

While infection plays its part, comparatively little is known about it. There is also much conflicting evidence as to whether it is a primary or secondary occurrence. It seems to be clear, however, that it may alter the composition of the stone in a variety of ways; but just what goes on still remains to be discovered. Under the same caption faulty drainage can be included, but rather quickly dismissed, as an item of importance. While it may induce or increase infection, every one knows that it may continue almost indefinitely without resulting in stone formation. Yet neither of these factors, especially infection, can be allowed to continue if the chance of calculus deposits is to be lessened.

It is obvious from all this that many factors are undoubtedly at work and that each must be evaluated. As Randall has wisely said, "The cause of stone must vary, for the effect is known to be a variant."

When the answer to all these questions has been discovered it will be known why stones form, why they vary in their composition, why they occur in one kidney and not in the other, why after removal they may recur in some instances (variously estimated as from 5 to 20 per cent) and not in others. It may also explain why children are for the most part so free from stones.

Having dealt with the negative side of the question, we shall now take up the positive side and narrate some of our experiences with parathyroid disease in its relation to stone. Various communications, especially those of Albright, Aub and Bauer, have shown that disturbance of the parathyroid has a far-reaching clinical effect. In their most recent article [2] they have discussed at length the extraordinary variety of symptoms to which hyperparathyroidism may give rise.

As knowledge of and interest in this disease extends over only a comparatively brief period, the material we have used dates back only to 1933. During this time 104 patients with urinary calculi, having a complete blood examination for calcium and phosphorus, in some instances more than once, have been operated on and stones have been removed. This number does not include a similar number in whom the blood was not investigated. In twenty marked for rechecking, the results proved to be negative in seven. Four of the remaining thirteen cases not yet reexamined would appear to be definitely instances of parathyroid disease if the blood examinations are to be depended on.

Our interest lies, however, in a group of eighteen cases of hyperparathyroidism, so proved by operation, eleven, or 61.1 per cent, of which presented not only parathyroid tumor but also urinary calculi. These eleven cases are included in the 104 previously mentioned, giving a total percentage of 10.5. As already stated, there are other cases in this group which may prove to be positive, thus increasing this percentage very appreciably.

These eleven patients, all bearing stones, together with seven others, having not stones but cystic degeneration of the bones, have all been operated on by Drs. E. D. Churchill and Oliver Cope at the Massachusetts General Hospital, creating, we believe, a unique experience for all concerned. A report of some of this work has already been made.[3] In most cases of lithiasis the parathyroidectomy followed the lithotomy.

It is interesting to note that of the eighteen patients twelve, or 70 per cent, were females and that the youngest patient was 13 and the oldest 62, with an average age of 43. The calcium blood content varied from 11.5 to 16.8, with an average of 13.78; the phosphorus content averaged 2.55, ranging from 1.4 to 4.7. It may be remarked that a serum calcium above 11 mg. per hundred cubic centimeters and a serum phosphorus below 3.5 mg. should always arouse suspicion. Bone involvement, ranging all the way from large multiple cysts to simple decalcification, was found in twelve, or 70.5 per cent, of cases. In six cases, stones and bony changes were found together. The stones were bilateral in four, or 36 per cent, of the eleven cases, and the urine was negative in 35 per cent. There has been no operative mortality. One patient, however, died in the hospital about one month after his seventh operation, at which time the parathyroid tumor was discovered behind the sternum and removed by Dr. Churchill. The cause of death was uremia, the direct result of parathyroid disease. The urologic surgery in these cases was done by various members of the staff.

1. Keyser, L. D.: South. M. J. **25**: 1031 (Oct.) 1932.

2. Albright, Fuller; Aub, J. C., and Bauer, Walter: Hyperparathyroidism, J. A. M. A. **102**: 1276 (April 21) 1934.

3. Churchill, E. D., and Cope, Oliver: Surg., Gynec. & Obst. **58**: 255 (Feb.) 1934.

We have given the details of these cases, not because, so far as the urologist is concerned, they differed in any way from other cases of urinary lithiasis but because they were associated with parathyroid disease and because of this are highly interesting and important. Papers by Albright and by Churchill and Cope which have already been published or are to appear later describe in detail the medical and surgical problems encountered.

Our interest in this problem led us to a careful follow up of as many of our cases of urinary lithiasis as we could recall. These patients have all been operated on and stones have been removed. To date thirty-three have been examined by us, this examination including the calcium and phosphorus blood contents and roentgen studies. Of this number eleven, or 33⅓ per cent, have the high blood calcium that is so consistent with parathyroid disease, and although in some of these the phosphorus content is rather high they must all be checked up and studied even more minutely. In only two cases, however, do there appear to be any bony changes. As yet no really complete follow up has been done in the proved hyperparathyroid cases. This will be done in due course and a report made.

It will be noticed that we have said nothing about the chemistry of the stones removed in these cases of parathyroidism. As Albright, Aub and Bauer have pointed out, "If the stone is the result of hyperparathyroidism, it should contain a large amount of calcium and phosphorus," and in fact this is the case. We are not yet prepared to remark on the chemistry of these stones because no great amount of data is yet available, and also because it is to be reported at a later time by Albright and his co-workers. Experience has shown that the proper study of these calculi can be done only by a highly trained physical chemist. We believe that such an investigation may throw much valuable light on the etiology of calculi in general.

Not only our experience but that of many others has shown the close and frequent relationship of urinary calculi and parathyroid disease. A perusal of the literature, while by no means exhaustive, has been illuminating. Hunter [4] in 1930 collected thirty-two cases of osteitis fibrosa in which there was satisfactory proof of hyperparathyroidism. In ten of the thirty-two cases (31.2 per cent) renal calculi were found. In one instance renal calculi began to break up a few weeks after the removal of the parathyroid tumor and were passed into the bladder. Sixty-five cases of parathyroid disease have been reported by thirty-six other authors. Stones were present in fifteen, or 23.07 per cent, these being bilateral in ten, or 66 per cent. While many other cases of hyperparathyroidism have been reported by other investigators. we have considered only those which were more or less associated with urinary lithiasis.

From all that has been said, it is obvious that we are dealing with a factor of the utmost importance in the etiology of stone. Whether the whole story has yet been told we doubt very much. The discovery is to be developed still further, and during this process it may shed light on other phases of the calculus problem. As yet it does not answer all the questions. If hyperparathyroidism is in the nature of an endocrine dysfunction, it must be generalized throughout the body and the urinary tract. Why, then, does it not result in stones in all cases or in bilateral stones uniformly? The fact that it does not would indicate that there must be some still unknown factor at work in the kidney itself which prevents stone formation in some cases. By the same reasoning there must be a local renal factor that induces unilateral stone in certain individuals and bilateral stones in others.

Perhaps a still more intensive study of the colloids will supply the answer. Possibly dietary and vitamin deficiencies or errors will be found to play their part more than seems now to be the case. Also it may be possible that infection or even stasis will come to be regarded more seriously. That some disturbance of metabolism, plus a factor or factors existing at least temporarily in one or both kidneys, is at work seems a plausible working hypothesis. The realization that hyperparathyroidism will account for at least a part of the problem is important and encouraging. Further studies by the endocrinologist and the biochemist, as well as by the physiologist, will, we feel sure, eventually succeed in solving the question of urinary stone formation.

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4. Hunter, Donald: Lancet **1**: 897 (April 26) 1930.

INHALED SILICA AND ITS EFFECT ON NORMAL AND TUBERCULOUS LUNGS

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It is no longer reasonable to maintain that all kinds of dust are equally dangerous to the lungs. A very convincing array of clinical, statistical and experimental observations has demonstrated that dusts composed, in whole or in part, of silica are capable of exciting a characteristic, progressive, nodular fibrosis of the lungs and that at the same time these organs become abnormally susceptible to the tubercle bacillus. All the other types of dust that have thus far been investigated can apparently be inhaled almost with impunity for long periods of time.

It was originally claimed that only uncombined or "free" silica in the form of quartz was capable of producing this effect, but in recent years there has been a growing tendency to look with suspicion on some of the silicates (combinations of silica with bases). One of them, asbestos, a silicate of magnesium, is now a well recognized cause of pulmonary fibrosis, although the reaction is diffuse and not nodular in character.

Jones,[1] an English geologist, claims that a silicate and not free silica is the important factor in the production of all cases of silicosis. In attempting to discover an explanation for the apparent absence of silicosis in certain localities where quartz abounds, he made comparative petrographic studies of both the rocks and the dust particles recovered from the lungs of men dying after such exposures. Where silicosis developed he found a fibrous silicate of aluminum and potassium called sericite in association with the quartz, and where there was no sericite there was no silicosis.

While the argument presented by Jones is given very convincingly and his evidence seems to indicate that the presence of sericite in certain localities coincides with

From the Saranac Laboratory for the Study of Tuberculosis of the Edward L. Trudeau Foundation.
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1. Jones, W. R.: Silicosis, J. Chem. Metallurg. & Mining Soc. of South Africa **34**: 1-51 (Sept.-Oct.) 1933.

the incidence of silicosis, nevertheless there are many who still doubt whether this substance is the universal cause of the disease called silicosis. In this country there are industries handling pure quartz in which numerous instances of silicosis can be detected. Experimentally, pure quartz will produce lesions essentially the same as those found in human silicosis.[2] Experimental tests of the action of pure sericite are in progress but it is yet too soon to expect results. For the present it seems advisable to suspend judgment on the Jones hypothesis until further evidence can be produced.

It becomes pertinent to examine the bases for the belief that only dusts of free and possibly combined silica are particularly harmful. Gye and Purdy[3] demonstrated that silica in colloidal form is a cell poison, which injected intravenously in large doses causes almost instant death but in smaller amounts produces proliferation of connective tissues. These authors thereupon proposed the hypothesis that particulate silica in the form of quartz is slowly dissolved in the alkaline fluids of the body, liberating minute quantities of colloidal silica, which constitutes the irritant responsible for the proliferation of the connective tissues. Chemical proof of this hypothesis is difficult, although King[4] believes that evidence of solution of silica in the body can be determined quantitatively by colorimetric methods. There is considerable indirect experimental evidence which favors the chemical theory of action. For example, it has been shown that the rate of reaction to particulate silica injected intravenously is inversely proportional to the size of the particles.[5] Particles less than 1 micron in diameter act quite like colloidal silica and cause acute inflammation and even death from necrosis of the liver within a few weeks. Particles from 1 to 3 microns in size produce progressive fibrosis in the liver with the formation of nodular lesions similar to those in the lungs caused by inhalation of silica dust. Particles from 10 to 12 microns in diameter stimulate the formation of small foreign body tubercles which do not change materially during a period of two years. Control injections of the same quantity of aluminum oxide (emery) particles cause no necrosis or proliferation of the connective tissues. Responses of this nature clearly indicate that the reaction to silica is chemical in nature.

Uncombined silica causes a very rapid necrosis of tissues, which is not produced by silicates and nonsiliceous dusts.[6] Injection of a sufficient quantity of sufficiently fine silica particles into the skin of guinea-pigs provokes an acute exudation of polymorphonuclear leukocytes within four to eight hours. After twenty-four to forty-eight hours the site of injection becomes necrotic and is surrounded by a zone of inflammatory edema from 10 to 20 mm. in diameter. The area resembles a strongly positive tuberculin reaction. Within a few days the center of the lesion ulcerates and most of the silica is eliminated in the slough that ensues.

If the concentration of silica is too low or if the particles are larger than 4 microns in diameter, the response is less intense and no necrosis develops. The reaction excited by many of the silicates is similar, but extensive necrosis with sloughing has not been observed. Sericite, for example, produces inflammation but no necrosis; its action simulates that of granite, a mixture of silicates with quartz. Other substances containing no silica are practically inert. Such substances as diamond, coal, emery, silicon carbide, hematite and gypsum cause pigmentation of the skin with a small amount of inflammatory edema, but the latter subsides and practically disappears after twenty-four hours.

Two features brought out in these experiments are difficult to reconcile with the solubility hypothesis. The relatively insoluble quartz particles are definitely more active than the more readily soluble silicate particles and tissue reactions begin to develop so quickly that it is hard to conceive of such a solution of silica having occurred in the weakly alkaline body fluids.[7] It would seem that either the cellular response to silica is due to some other property than solution or that the ions liberated from free silica are more active than those from the silicates. Silica particles have a negative charge, while most other substances thus far studied are positive; but the effect of this property has never been thoroughly investigated. Obviously, further study is necessary before the mechanism underlying the irritative effect of silica can be properly evaluated.

It may appear that unwarranted emphasis has been laid on the toxic effects of silica, for the most prominent feature of human silicotic lesions is not degeneration but proliferation of connective tissue. Nevertheless the same stimulus, which in extreme concentration results in degeneration and death of cells, in a weaker form merely stimulates the growth of connective tissue. In the animal experiments reviewed, conditions have been made as extreme as possible in order to bring out in sharp relief the contrast between the response to silica and that to other particulate substances. While degenerative changes are not generally prominent in the ordinary case of human silicosis, they do occur. The centers of the hyaline fibrous nodules, where the concentration of particles is greatest, usually show definite evidence of necrosis. In the rapidly developing cases[8] due to the inhalation of excessive quantities of exceedingly fine particles, the bronchioles and other air spaces often contain large masses of necrotic mononuclear and polymorphonuclear leukocytes.

The prolonged inhalation of fine silica dust by white rats, rabbits and guinea-pigs results in the formation of hyaline fibrous nodules throughout the lungs and the tracheobronchial lymph nodes. While there are minor variations in the reaction in different species, the lesions are all comparable to those in human beings. Furthermore, such reaction has regularly occurred in the absence of tuberculosis or other infection, indicating that silica alone can produce nodular fibrosis. By killing animals at serial intervals during the period of dust exposure, the evolution of the pathologic process has been observed. Since the various steps are sufficiently like those disclosed in occasional autopsies of early cases in human beings, it has been assumed that similar mechanisms were involved.

2. Gardner, L. U.: Experimental Pneumonoconiosis: VIII. Inhalation of Quartz Dust, J. Indust. Hyg. **14**: 18-38 (Jan.) 1932.

3. Gye, W. E., and Purdy, E. H.: The Poisonous Properties of Colloidal Silica, Brit. J. Exper. Path. **3**: 75-95 (April) 1922; **5**: 238-250, 1924.

4. King, E. J.; Stantiel, Helen, and Dolan, Margery: The Biochemistry of Silicic Acid: III. Excretion of Administered Silica, Biochem. J. **27**: 1007-1014, 1933.

5. Gardner, L. U., and Cummings, D. E.: Reaction to Fine and Medium Sized Quartz and Aluminum Oxide Particles: Silicotic Cirrhosis of the Liver, Am. J. Path. (Supp.) **9**: 751-764, 1933.

6. Gardner, L. U., and Cummings, D. E.: Unreported experiments.

7. To make sure that some solution of silica had not already occurred in the aqueous suspensions of the particles before they were injected, air-separated dust was sterilized in dry heat, suspended in salt solution and immediately injected into the skin. Reaction developed just as promptly as with the autoclaved or boiled suspensions.

8. Gardner, L. U.: Pathology of So-Called Acute Silicosis, Am. J. Pub. Health **23**: 1240-1249 (Dec.) 1933.

With this background of experimental observation, an attempt will be made to interpret the pathologic picture disclosed by the autopsy of a human case of far advanced silicosis. In the great majority of instances this picture is complicated by a coexistent tuberculosis. In South Africa, Irvine [9] has stated that about 75 per cent of all silicotic persons will die of tuberculosis and the same is probably true in this country. In the absence of tubercle, one usually finds a pneumonia. In the far advanced case the silicotic element is represented by discrete fibrous nodules, from 2 to 5 mm. in diameter, generally black from soot or other dust inhaled with the silica, distributed throughout both lungs. In the apexes they are less numerous or absent. Sometimes the nodules, particularly in the middle part of the lungs, are embedded in a diffuse deposit of fibrous tissue radiating as a solid fan-shaped mass from one to both hili. The blood vessels and, to a lesser extent, the bronchi, have thick fibrous walls. The interlobular septums are heavy and accentuate the lobular character of the organ. The less involved air spaces are dilated and have thick walls; sometimes along the borders of the lungs there are large emphysematous blebs. Extensive pleural adhesions generally mean infection. The tracheobronchial nodes are either slate gray or black. In the earlier stages of the disease they may be soft and 3 or 4 cm. in diameter, but later they often become small, hard and contracted. In the occasional case there may be small nodules in the spleen and liver, but usually the only abdominal involvement occurs in the hepatic lymph node situated near the head of the pancreas and the common bile duct.

The tuberculous element in the picture may be typical in its character and distribution, but more frequently it is not. Usually the most extensive area of infection occurs not in the apex but in the middle or lower lung. Here one may find a thick-walled cavity with evidences of extension into the adjacent lung. The process may be exudative or caseous in character, but more often it is productive with the formation of tuberculous granulation tissue in various degrees of organization, containing only small foci of caseation. Very frequently the center of each silicotic nodule presents a gray dot of caseation, while about its periphery there may be a zone of opaque pneumonic reaction. The typical picture of an apical cavity with the clustered nodules of aspiration disease in the lower lung is relatively rare. Fibrous pleurisy is the rule.

In the light of experimental observations and of the few early cases of human silicosis that come to autopsy, the evolution of uncomplicated silicosis can be depicted in the following manner: When the amount of silica in the industrial atmosphere is not too great, physiologic mechanisms are more or less effective in disposing of the inhaled particles for some years. Particles that reach the terminal air spaces are ingested by the phagocytes. The irritating silica may kill the first cell and several new ones emigrate from the fixed tissue to take its place, thereby creating a picture of cellular activity. Stimulated by the irritant, the surviving cells, each containing only a few particles, begin to move out of the air spaces into the lymphatic system. In so doing many of them pass through masses of lymphoid tissue. The phagocytes are so numerous that not all can enter and they form tubercle-like collections about the periphery of the lymphoid nodules. Silica is thus concentrated in focal areas. Many of the cells succeed in passing through into the lymphatic trunks and are either carried directly to the tracheobronchial lymph nodes or are held up in the intrapulmonary lymph nodules along the way.

The increasing concentration of silica in these locations stimulates the reticular elements of the lymphoid tissues. They proliferate; the nodule increases in size and gradually compresses the lymphatic channels. This impedes the flow of lymph and prevents effective elimination of particles, which are subsequently inhaled. The lymphatic vessels dilate because of the obstruction at their mediastinal ends and the compression at nodal points along their course through the lungs. Many phagocytes pass outward through their walls and deposit silica in the loose areolar tissue through which the vessels course. These tissues also proliferate and form a fibrous sheath about the lymphatic. For unexplained reasons the lymphatic trunks accompanying branches of the pulmonary artery seem to bear the brunt of these activities. As a result the walls of the arteries become appreciably thickened and the enlarged lymphoid nodules produce beadlike nodulations along their course.

These preliminary changes chiefly affect the lymphatic system and the tissues immediately about them. With ordinary concentrations of atmospheric dust, from three to ten years is required before this reaction is fully developed and the lymphatic system is irreparably damaged. In the generally accepted medicolegal sense, such changes are not considered as indicative of the disease silicosis but merely as preliminary alterations.

In good stereoroentgenograms of the lungs these changes are quite obvious. The linear shadows cast by the blood vessels are accentuated and extend much farther out into the lung than normally. The effect is due to proliferation of connective tissue about the lymph trunks coursing through the vessel walls. "Beading" along the vessels is caused by the formation of minute silicotic nodules in the lymphoid tissues associated with the lymphatics. The mediastinal shadow is broadened because of reaction in the nodes and about the afferent lymphatics traversing the areolar tissue outside the nodes.

When the damage to the lymphatic system is severe, inhaled particles are no longer effectively eliminated from the air spaces. The phagocytes now migrate into the peripheral framework of all parts of the lungs. The concentration of silica thus effected causes local proliferation of connective tissue cells. This occurs in the form of nodules and as a diffuse thickening of the alveolar walls. The characteristic nodular form develops because phagocytes tend to clump together, often about small peripheral masses of lymphoid tissue, and hold the silica at focal points. As time elapses, the number and size of such lesions increases. Even if the workman leaves his dusty occupation and retires to the country after inhaling a sufficient quantity of silica to produce nodulation in the parenchyma of the lung, the pathologic process will continue to progress; for the silica is no longer effectively eliminated by expectoration unless infection supervenes and, being a chemical poison, it continues to exert its effect as long as it remains in contact with the tissues.

In the first stage of the legally recognized disease, the roentgenographic examination reveals minute nodules throughout the middle portions of the lung field, often more marked on the right side. As the

9. Irvine, L. G.; Simson, F. W., and Strachan, A. S.: The Clinical Pathology of Silicosis, Internat. Labor Office Report Series F, Johannesburg Conference on Silicosis, (Indust. Hyg.) Geneva, 1930, No. 13, p. 269.

condition progresses these nodules increase in size and blot out the previously prominent linear markings. In the second stage the nodular shadows become so large that they tend to become confluent and obscure all the normal markings. However, they still retain their uniform distribution and the outlines of the individual units are fairly well defined. Irvine [10] has aptly compared these appearances to the leafless tree, the tree in bud and the tree in full leaf.

As mentioned before, in some cases classified as third stage the nodules may occur in localized masses embedded in dense connective tissue. The significance of such localization is still debatable. Many observers believe that it is always indicative of coexisting infection, but in a few of the cases that have come to autopsy no evidence of an active infectious process has been discovered. Theoretically any local condition that might disturb the efficiency of lymphatic drainage in a particular part of the lung could produce such an effect. This might be caused by a preexisting pneumonia which had healed previously to the time of dust inhalation. It is also conceivable that a large focus of calcified primary tubercle formation in a lymph node might interfere with efficient lymphatic drainage. How far collateral lymphatic circulation would offset such a result has not been determined. A pneumonic process of tuberculous or pneumonococcic origin, occurring early in the course of dust inhalation, would be the most obvious cause of localization. Nontuberculous pneumonias frequently fail to resolve in the presence of coexistent silicosis and organization of such a process could explain the picture. However, some of the cases that have come to autopsy with such localized lesions give no history of serious illness. Pancoast and Pendergrass [11] are of the opinion that localized shadows in the silicotic lung are of tuberculous origin when they extend to the periphery of the lung and that when they do not they are due to some other cause.

Under certain unusual conditions it is apparently possible for silicosis to develop rapidly, within a period of eighteen months to four years. Where the dust particles are exceedingly small and where the concentration of dust is excessive, as occurred, for example, in the process of sandblasting before the hazard of this occupation was recognized, cases of rapid silicosis were not uncommon. So many fine particles are inhaled in such a short time that the lymphatic system is entirely inadequate to remove them. As a consequence, at the same time that nodules are developing in lymphoid tissues of the lung and mediastinum, similar lesions are forming everywhere in the walls of the air spaces. The nodules are of microscopic size and there is an unusual amount of diffuse connective proliferation. The fineness of the silica renders it unusually toxic and degenerative changes are prominent. I have had opportunity to study autopsy material from fifteen such cases, in all of which death was caused by superimposed infection.[8] What might be the outcome had no infection occurred can be surmised from animal experiments with excessive exposure. In guinea-pigs thus exposed, the lungs are quite generally consolidated and while nodules are formed they are so embedded in the diffuse reaction that they can be seen only in microscopic sections.

Most patients with silicosis die of a complicating tuberculosis. The source of the infection may be endogenous or exogenous. In the past it was generally believed that in most instances it originated through contacts established in the industrial environment, but it is becoming recognized that some cases develop from preexisting foci of tubercle. The clinical course of the infection is often atypical; it may not produce characteristic symptoms for a long time and can then only be diagnosed by the roentgenogram.

It manifests itself in several anatomic forms. Rarely it occurs as a healed apical scar, which has perhaps persisted for years without change. In nonsilicotic individuals such scars, according to Sampson and Brown [12] represent infections that have been acquired and completed their course before the age of 25. If the x-ray film of a workman exposed to dust for fifty or more years exhibits such an apical scar in a lung studded with discrete nodulation, it might be assumed that the infectious lesion is probably sterile and will never become reactivated. But there are individuals first exposed to dust after the age of 25 in whom the roentgenogram shows that such reactivation has already occurred. The upper portion of one or both lungs is involved with a massive combination of silicosis and tuberculosis, which is chronic in its course and often causes so few symptoms that it may be discovered only in routine examination of active workmen. The occurrence of such instances of reactivation makes one cautious in suggesting the possible outcome of any tuberculous lesion in the silicotic subject. The apical scar, which will remain innocuous throughout the life of an ordinary person, may harbor living bacilli in a minute focus of caseation. Experience with animals [13] indicates that long continued inhalation of silica may ultimately activate this focus and cause it to spread.

The more common site of tuberculosis, as already mentioned, is in the middle or lower lung. In these cases there is usually no evidence of tubercle in the apexes. The roentgenogram may show fully developed silicosis with nodulation evenly distributed throughout the lungs except for a circumscribed area of confluence in the lower two thirds of one of the lungs. In the next roentgenogram, from three to six months later, this localized area has perhaps increased in size. Comparison of this film with the previous one may disclose the fact that each individual nodule throughout the lung has become larger and now casts a fluffy shadow. It is as if the nodules were kernels of corn that had popped. Such disease often continues to spread for months or even years without producing symptoms, expectoration or tubercle bacilli in the sputum. Even cavities may form without clinical manifestations. Ultimately symptoms appear; the cases are diagnosed as tuberculous and find their way to sanatoriums but usually only after a period of some years has elapsed.

Infection may supervene at any time in the course of silicosis. Not infrequently a man leaves his dusty work quite unconscious of the fact that he has acquired silicosis. The disease continues to progress and sooner or later he acquires a superimposed tuberculous infection. In the course of time, symptoms are manifested which bring him to a physician. Unless this doctor inquires carefully into the past occupational history, the important feature of a previous exposure to silica may be entirely overlooked and his condition may be

10. Irvine, L. G., and Steuart, W.: The Radiology and Symptomatology of Silicosis, Internat. Labor Office Report, pp. 269-293.

11. Pancoast, H. K., and Pendergrass, E. P.: The Roentgenological Aspects of Pneumonoconiosis and Its Medicolegal Importance, J. Indust. Hyg. **15**: 117-135 (May) 1933.

12. Sampson, H. L., and Brown, Lawrason: Correlation of Clinical and Roentgenological Observations in Pulmonary Tuberculosis, Radiology **22**: 1 (Jan.) 1934.

13. Gardner, L. U.: Experimental Pneumonoconiosis: V. Reactivation of Healing Primary Tubercles by Inhalation of Quartz, Am. Rev. Tuberc. **20**: 833-875 (Dec.) 1929.

diagnosed as one of atypical basal tuberculosis with diffuse dissemination.

All the types of tuberculosis thus far mentioned are chronic in their course, but acute forms are not infrequent. Acute cases are sometimes discovered in taking serial roentgenograms of groups of workmen employed in silica industries. On the first examination the film may show a generalized nodulation with a small localized shadow at one point. Two or three months later this shadow will be seen to have increased in size and perhaps many of the nodules in other parts of the lung no longer cast clearly defined shadows. A cavity may form in the original focus and subsequently obvious evidence of infection develop elsewhere. In one such case recently observed, death from generalized pulmonary tuberculosis occurred six months after the first localized shadow, no larger than the thumb nail, was detected. This man, apparently well at the time, later showed fever and other symptoms of intoxication but tubercule bacilli were never found in smears of the sputum. He came to autopsy and the lungs exhibited a typical picture of silicosis with tuberculous pneumonia, but bacilli could be found only after prolonged search.

The pathology of the tuberculous complication has been discussed from its roentgenologic aspects because by this method the evolution of the process can be followed. Histologic examination of the terminal stage seen after autopsy may confirm the diagnosis, and it permits differentiation between silicotic and tuberculous foci. Usually the tuberculous lesions are of a productive type consisting of cellular granulation tissue, which shows a marked tendency toward organization. Such reaction surrounds silicotic nodules so that they become embedded in scar tissue. Caseation and cavity formation occur, but degenerative changes are not always prominent. Such involvement obviously results from extension through the lumen of the air spaces and it merely surrounds any silicotic nodules that happen to be present. In addition, the centers of nodules remote from pneumonic areas frequently contain minute points of caseation. Such a manifestation could be due to dissemination of bacilli through blood or lymph vessels. The lymphatics seem less likely to be the channel of infection, for usually their lumens are completely obliterated. Included blood vessels are also greatly constricted but many of them are potentially patent and could carry organisms into the nodule. In acute cases such as the one described the tuberculosis is of the caseous pneumonic type.

The specific cause of the unusual susceptibility of the silicotic lung to tuberculous infection is not known. The phenomenon can be duplicated in the experimental animal and certain aspects have been studied in detail. Kettle [14] showed, for example, that bovine tubercle bacilli injected intravenously into ordinarily nonsusceptible white mice would localize and multiply without restraint in foci where large quantities of silica had been injected. I [15] have demonstrated that guinea-pigs infected with attenuated tubercle bacilli and then exposed to the inhalation of quartz dust develop a very chronic but fatal form of silicotuberculosis, whereas in normal animals the same infection completely heals and disappears. The effect is not due to changes in the bacilli, for when portions of the lungs of the infected silicotic guinea-pig are subinoculated into normal animals the infection is not progressive. The same result can be obtained by infecting silicotic rabbits with human tubercle bacilli, a type which ordinarily does not produce progressive disease in this animal. All of these studies have merely shown that tubercle bacilli grow better in silicotic soil than they do in normal animal tissue. Cummins [16] suggests that the obstruction of the lymphatic system mechanically prevents elimination of bacteria from the lung; but this will not explain the selective localization and proliferation of intravenously injected bacilli in an area of silicotic reaction in the groin. Studies are now in progress to determine whether there is a disturbance of the mechanisms of immunity in silicosis.

The modifying effect of other substances inhaled with silica probably deserves more attention than it has thus far received. It is claimed that the presence of free alkali accelerates the solution of silica and hence promotes more rapid tissue changes. A considerable number of these rapid cases have been reported among young women packing siliceous scouring powders, but their similarity to the disease in sandblasters and others wherein there was no alkali suggests that the excessive exposure to fine dust may have been responsible.

On the other hand, certain other substances seem to retard or prevent silica from exerting its usual effects. The lesions of silicosis in the anthracite coal miner [17] and the hematite miner [18] are often quite atypical even though the concentrations of silica to which these men have been exposed may have been high. Coal and hematite alone tend to produce subpleural and perilymphatic pigmentation with the formation of considerable cellular connective tissue in these locations. The parenchyma of the lung suffers little damage and no nodules are produced. When a little silica is inhaled with these substances, the connective tissue tends to become more dense and hyaline in character but still retains its perilymphatic distribution. If the amount of silica is still greater, nodules form along the lymphatic trunks. Only when silica predominates do nodules develop in the parenchyma of the lung, but even these nodules lack the clear cut definition of the uncomplicated silicotic lesion. They are surrounded by wide, stellate zones of deeply pigmented cellular connective tissue. How far the tuberculous complication may be influenced by coal, hematite and other dusts is still debatable. Considerable evidence is available to suggest that it is not so apt to become progressive as among workers in pure silica.

The effects of the silicates cannot be considered here except to state that the lesions of asbestosis are not nodular but diffuse in character. This is probably due to the shape and character of the particles, which in consequence are not concentrated at focal points by the phagocytes. Tuberculosis is not so invariably the cause of death in the case of asbestosis, although numerous cases have been reported in which it has caused death.[19]

SUMMARY

Dusts containing silica are preeminently dangerous. Present knowledge will not permit it to be said that only free silica is harmful; possibly some of the sili-

14. Kettle, E. H.: The Demonstration by the Fixation Abscess of the Influence of Silica in Determining B. Tuberculosis Infections, Brit. J. Exper. Path. **5**: 158-164 (June) 1924.
15. Gardner, L. U.: Unpublished experiments.
16. Cummins, S. L.: Silicosis in Gold Miners and Coal Miners, Am. Rev. Tuberc. **29**: 17-35 (Jan.) 1934.
17. Gardner, L. U.: The Pathologic Reaction in Various Pneumonoconioses, J. A. M. A. **101**: 594-598 (Aug. 19) 1933.
18. Stewart, M. J.: Silica in Relation to Pulmonary Disease, Tr. Tuberc. Soc. Scotland, 1932-1933, pp. 86-92.
19. The following references furnish excellent reviews of asbestosis:
Merewether, E. R. A.: A Memorandum on Asbestosis, Tubercle **15**: 69-81 (Nov.), 109 (Dec.) 1933, 152-159 (Jan.) 1934.
Gloyne, S. R.: Morbid Anatomy and Histology of Asbestosis, Tubercle **14**: 445-451 (July), 493-497 (Aug.), 550-557 (Sept.) 1933.

cates will also be incriminated. One silicate, asbestos, produces a characteristic and dangerous type of pulmonary fibrosis. Silica is a tissue poison. In low dilutions it causes nodular fibrosis; in higher concentrations it produces rapid necrosis of cells of all kinds.

Human silicosis begins by damaging the pulmonary lymphatic apparatus and is followed by the development of nodular fibrosis of the parenchyma of the lungs.

Silicosis specifically predisposes to infection with the tubercle bacillus. The mechanism of this action has not yet been determined. It probably consists in some alteration in the soil rather than in changes induced in the infecting organism.

Nonsiliceous dusts localize about the lymphatic trunks and some of them excite the proliferation of small amounts of loose cellular connective tissue. They apparently do not increase susceptibility to tuberculosis.

Nonsiliceous dusts inhaled in combination with silica modify the action of the latter, altering the anatomic characteristics of the lesions and apparently decreasing the susceptibility to tuberculosis.

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Clinical Notes, Suggestions and New Instruments

GONORRHEAL PROSTATIC ABSCESS IN FOUR YEAR OLD BOY

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Gonorrhea in the male child is considered rare, or very rare, by most authorities, and not a great many cases have been reported in boys at or before puberty. Squires reports five cases of gonorrhea in male children ranging in age from 5 years to 12 years. Bierbach reports two cases in young boys whose respective ages were 3 and 6 years. Wolbarst, within two years, saw twenty-two cases of gonorrheal infection in boys ranging from 18 months to 12 years of age. Textbooks make little or no mention of gonorrhea in male children, although its comparative frequency is recognized in female children. Unquestionably the condition is much rarer in young boys than in young girls.

Most authorities who report cases emphasize the fact that gonorrheal infection in children is accompanied much less often by complications than is the infection in adults. This is presumably due to the fact that children are much less likely to have the irritations of sexual excitement and alcoholic excesses than are adults. In fact, in a recent issue of THE JOURNAL it was stated[1] in answer to a query concerning a 6 year old boy with gonorrhea that the condition should clear up rapidly without complications if no traumatic treatments were given, because children are not subject to the chief causes of complications and chronicity; namely, sexual excitement and alcohol.

Some authors report cases of complications with and without local treatment. The complications thus reported have been phimosis, lymphangitis of the penis, prostatitis, inguinal adenitis and epididymitis. As far as could be determined by a review of the literature, none have reported an instance of prostatic or periurethral abscess and most declare that the infection clears up rapidly.

The case reported here may be considered unusual because of its chronicity and complications, in a very young child who was subjected to none of the influences ordinarily considered as causative of complications and chronicity.

REPORT OF CASE

H. H. J., a boy, aged 4 years, seen Aug. 18, 1932, was brought by his parents because of painful urination and swelling and redness of the penis.

At my first observation the glans and prepuce of the penis were inflamed and edematous and there was a profuse yellowish white discharge from the urethra. A smear was made of this discharge and many pus cells with a great many gram-negative intracellular diplococci, morphologically identical with gonococci, were found. At this time the condition did not appear so serious. The child was placed on small doses of methenamine internally and the parents were instructed in the method of cleansing the penis with a mild antiseptic solution. No injection was prescribed or used.

In a day or two the patient was brought back with a severe paraphimosis, with great constriction of the penis behind the glans and very marked edema of the glans and prepuce. This paraphimosis could not be reduced and urination had become so difficult that it was necessary to incise the constricting band. This resulted in a subsidence of the swelling in a few days and urination became more normal.

The urethral discharge continued freely for two weeks and then subsided, but pus and gonococci continued to be present in the urine in large numbers. The inflammation and swelling of the glans and prepuce also had practically disappeared in two weeks. There was then no evidence of trouble except in the urine until September 27, when the child began to have pain in the perineum when sitting down or walking. He was then admitted to the Greeneville Sanatorium and Hospital.

There was a very tender mass about the size of an English walnut in the midline of the perineum. The skin over this mass was reddened and edematous and there was slight fluctuation. There was no urethral discharge and no swelling or inflammation of the prepuce or glans. The urinary examination revealed many pus cells and gram-negative extracellular diplococci and a few gram-negative intracellular diplococci. On admission the temperature was 100 F.

After admission to the hospital the pain and tenderness in the perineum became progressively worse and the mass became larger and more fluctuant. The temperature rose to 102. It was decided to incise the mass and on September 30 this was done under general anesthesia. A large amount of thick yellowish white pus was evacuated through a median perineal incision. The abscess cavity was mostly on the right of the midperineal line and extended back to the arch of the pubis. A smear of the pus showed many gram-negative intracellular diplococci morphologically identical with gonococci.

The condition of the child rapidly improved following the incision and in three days his temperature reached normal, where it remained thereafter. The pain and inflammation rapidly subsided in the perineum but there was more or less drainage for several weeks. The patient was able to return to his home seven days after the operation.

He, however, was kept under observation until January 1 and repeated examinations of his urine were made. There was a decrease in the pus cells and diplococci but on the last examination in this period a few gonococci were found.

Some time before this the perineal incision had entirely healed. The general and local condition of the child had so markedly improved that his parents ceased to bring him for examinations.

He was again seen on May 5, 1934, about twenty months after the gonorrheal infection began. At this time his urine was free from pus and bacteria and the local parts were normal except for the prepuce, which was redundant.

COMMENT

At no time was this 4 year old child given any urethral injection, nor was any sound or other instrument passed into the urethra, yet his gonorrheal infection lasted for at least five months. The abscess that was opened in the perineum was gonorrheal and came from the prostate, most probably, because there was never any periurethral extravasation of urine or leakage of urine through the perineal incision.

The source of infection could not be determined definitely, but the mother stated that the boy had been playing with a little girl, of about his own age, who was known to have gonorrheal vulvovaginitis. Handling of the penis sometimes resulted in erections, and it is very likely that infection was derived from sexual contact with the girl.

1. Gonorrhea in a Six Year Old Boy, Queries and Minor Notes, J. A. M. A. **101:** 1903 (Dec. 9) 1933.

This possible precocious sexual development of the boy may have been a factor in causing his complications and the chronicity of the case. Wolbarst and other writers now incline to the idea that gonorrhea in children is more commonly due to sexual contact than is generally supposed, and this certainly would be a rational conclusion in boys, in whom the opening through which infection must take place is so small.

Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.
CHICAGO

NOTE.—*In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.*—ED.

THERAPY OF BARBITURATE POISONING

In barbiturate poisoning the phenomena of excitation, even up to tonic spasms and trismus, are rare. They are present only after relatively small toxic dosage. Recovery is the rule. Heroic administration of sedatives in such cases with excitation may cause death.

Usually the patient arrives at the hospital in coma, with the reflexes and pupillary reactions retained or even exaggerated. While the barbital pupil is usually dilated with normal or slightly delayed pupillary reaction (and it is small and reactionless only in extreme cases), the pupil of morphine poisoning is generally small and becomes dilated only shortly before death. A test for barbital in the urine that clinches the diagnosis is made by acidifying it and shaking out with ether, which leaves, on evaporation, large crystals that melt at 190 C.

The fatal dose is, in general, from fifteen to thirty times the therapeutic dose. The nearly always fatal dose of barbital is about 10 Gm., of phenobarbital about 4 Gm. and of dial about 2.4 Gm. The mortality rate may exceed 20 per cent. Barbiturate poisoning generally continues for several days before death or recovery takes place.

Treatment requires the recognition of two stages: the stage of coma and the stage of reaction.

Stage of Coma.—1. Evacuation of the stomach, with the patient's head lower than the stomach (best carried out on the operating table) is done to prevent aspiration of fluid overflowing from the stomach around the tube, with subsequent development of aspiration pneumonia. If trismus is present the duodenal tube should be passed through the nose. The stomach should be washed thoroughly with diluted (pink) permanganate solution. Lavage is indicated even when the poison was taken many hours previously. To clear unabsorbed poison from the bowel, Magnesium Sulphate (60 Gm.) should be left in the stomach with Fluidextract of Cascara (16 cc.). The tube should be left in place. If no bowel movement is secured, this should be followed in a few hours with a full dose (240 cc.) of Compound Infusion of Senna; and, if this fails, a bombardment should be kept up with 30 cc. of Castor Oil at intervals of four hours until bowel evacuation is secured. Enemas may be required in addition, and these might well consist of hot strong, black coffee, any quantity of which retained also serves as an antagonist.

2. Postural drainage should be maintained continually. The foot end of the bed is elevated to tilt the bed from 15 to 20 degrees, the patient's feet being tied to the end of the bed if necessary, and the patient's head turned to the side. Secretions accumulating in the pharynx should be removed by suction.

3. Feeding should be done through the stomach tube, at intervals of every four hours, with two cupfuls of not excessively hot, strong coffee with some milk. When a feeding is due, the stomach should always be evacuated of its contents before injection of the feeding that is due, so as to avoid overdistention of the stomach and possible overflow around the tube and aspiration into the lungs.

4. Antagonists should be given in heroic doses, liberally and in rotation. Caffeine in the form of warm black coffee by rectum or of Caffeine Sodio-Benzoate, 0.5 Gm., intramuscularly every two hours up to 1 Gm., repeated after a rest period, and Metrazol, 2 cc. of 10 per cent solution intravenously and 2 cc. intramuscularly at the same time. This dosage may be repeated from every thirty minutes to one hour. Strychnine nitrate, 2 mg. hypodermically every hour or two, should be given until there is increased reflex excitability.

5. Elimination should be assisted by 5 per cent dextrose phleboclysis to maintain free secretion of urine. This may be helped by a xanthine diuretic: (*a*) Aminophylline (theophylline ethylenediamine) in doses of 0.25 Gm. in 10 cc. of water, which may be given in the dextrose infusion, possibly every eight hours. (*b*) If this is not available, suppositories containing Theobromine Sodio-Salicylate, 0.5 Gm., or preferably Theophylline, 0.25 Gm. (prescription 1), may be administered four or more times daily. Catheterization should be done every four to six hours.

PRESCRIPTION 1.—*Theophylline Suppositories*

℞	Theophylline	2.50 Gm.
	Oil of theobroma	17.50 Gm.

Mix and divide into ten suppositories. One every four hours.

6. The body temperature should be kept from falling below the normal by the application of external heat with great care to prevent burns. In conditions of subnormal temperature, heat is the greatest of all stimulants, it is a requisite to permit medicinal stimulants to act properly, and it may prevent the lowering of resistance that favors the development of pneumonia.

7. Artificial respiration with oxygen inhalation should be instituted on the appearance of marked enfeeblement of respirations. Death from primary paralysis of respiration is, however, very rare. Death from primary circulation failure occurs only in cases in which the heart is diseased.

Stage of Reaction.—Usually by the end of the first day the temperature rises, respiration becomes embarrassed, pneumonic foci or pulmonary edema develops, the blood pressure falls and the pulse becomes enfeebled. These pulmonary sequelae are probably in most instances the result of the general vasoparesis with or without subsequent infection. Nevertheless, everything should be done to prevent the possibility of a suspicion that they are due to aspiration or to chilling. The treatment is that of pneumonia (q. v.).

Great tendency to decubitus (q. v.), also due to vascular paresis, requires special precautionary measures.

Constant nursing care is imperative to give these desperately sick and helpless patients their best chance for survival.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE.
H. A. CARTER, Secretary.

RESUSCITATION

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The art of resuscitation [1] has made great advances during the past twenty years both in theory and in practice. These advances will be briefly reviewed here. There are also some developments to report, so recent that they have not yet reached practical application, and some further developments are indicated as probable during the next few years. Such developments deserve encouragement, for there are still large possibilities of improvement in the field of resuscitation. The chief objects of this article are three:

1. To promote the widest possible use of those measures and devices that have been proved by experience to be safe and effective.
2. To give warning against the use of drugs and apparatus that, instead of benefiting, may injure patients or may even result in loss of life.
3. To show that the facts of resuscitation largely refute the theory of asphyxia that is now generally accepted, and to promote the development of sound theory as a basis for further progress in the art of resuscitation.

FORMS AND DEGREES OF ASPHYXIA

Resuscitation is the therapeutics of acute asphyxia. The causes and forms of asphyxia, both acute and chronic, are many, and their treatment should vary to correspond with their differences. They include drowning, electric shock, carbon monoxide poisoning, neonatal apnea and atelectasis, anesthetic and postoperative depression, mountain sickness, aviators' collapse, and the impairment of the lungs by irritant gases and by pneumonia. Indeed, the terminal stages of most of the various ways of dying—the stages when the circulation and respiration are failing—are largely asphyxial.

Short of death there are also three degrees of asphyxia. They differ in the duration and intensity of the asphyxia. According to their outstanding features they are apneic asphyxia, acarbic asphyxia and chronic asphyxia.

Apneic Asphyxia.—Brief but intense asphyxia, under complete deprivation of oxygen, is exemplified in drowning. Its outstanding feature for treatment is apnea: cessation of breathing. The vital machine is little damaged. It is merely stopped. It is restarted mainly by means of artificial respiration. Inhalational treatment is secondary, although it is often of critical value for the saving of life. If recovery occurs at all, it is generally rapid and complete.

Acarbic Asphyxia.—More prolonged but less intense asphyxia is exemplified in those cases in which sublethal atmospheres of carbon monoxide have been breathed for several hours. The patients are often still breathing, although in profound coma, when removed from the poisonous atmosphere. The vital machine has been so deranged by asphyxia that, without treatment, recovery is slow and painful. There may be sequelae of mental or physical incapacity, indicating profound tissue damage especially in the nervous system, or even subsequent death. In such cases artificial respiration is often not needed, as breathing has not stopped. But if further damage is to be prevented and recovery is to be rapid, inhalational treatment is essential. Prolonged acute deprivation of oxygen through any agent or process induces this type of asphyxia. But restoration of oxygen alone does not cure it or cures it only very slowly. Experience has shown that for rapid restoration of normal conditions the effective means, along with oxygen, is inhalation of carbon dioxide in proper dilution. In the benefits of this inhalation the stimulation of respiration is important, but the deeper effects of carbon dioxide on the conditions in the blood and tissues, particularly the relief of acarbia, (defined below), are equally or even more important.

Chronic Asphyxia.—In addition to these two forms of acute asphyxia there is also a third or chronic asphyxia due to a partial deprivation of oxygen. It occurs in anemia and in heart disease and is characterized by shortness of breath and continual oxygen debt. Restoration of red corpuscles and prolonged inhalation of oxygen [2] are the logical treatments.

The fundamental processes occurring in all forms of asphyxia are as yet but incompletely understood or, rather, they have been generally misinterpreted. They have been variously termed acapnia, acidosis and acarbia: deficiency of carbon dioxide, excess of acid and diminution of the amount of alkali bicarbonates in the blood. This much only is clear: Deficiency of oxygen induces a profound disturbance of the state in which carbon dioxide is normally held in the body and in its amount. I shall call this state "acarbia." It is the state generally called "acidosis" and mistakenly regarded as an intoxication by acid.[3] Restoration of the supply of oxygen overcomes this state but slowly. If injury to the tissues has not gone too far, restoration of carbon dioxide by inhalation, together with adequate oxygen, rapidly and completely restores normal conditions in the body.

ARTIFICIAL RESPIRATION AND INHALATIONAL APPARATUS

In such states as the complete apnea induced by submersion in water or by electric shock, even seconds are precious. Death will quickly result unless the supply of air to the lungs is immediately renewed. The prompt application of artificial respiration is therefore the measure of primary importance and for this purpose the

From the Laboratory of Applied Physiology, Yale University.

1. Henderson, Yandell: Resuscitation from Carbon Monoxide Asphyxia, from Ether or Alcohol Intoxication, and from Respiratory Failure Due to Other Causes; with Some Remarks also on the Use of Oxygen in Pneumonia, and Inhalational Therapy in General, J. A. M. A. **83:** 758-763 (Sept.) 1924.

2. Kroetz, C.: Formen der Dyspnoe: 1. Cardiac Dyspnoe, Deutsches Arch. f. klin. Med. **169:** 257, 1930. Uhlenbruck, P.: Ueber die Wirksamkeit der Sauerstoffatmung, Ztschr. f. d. ges. exper. med. **74:** 1, 1930. Jansen, K.; Knipping, H. W., and Stromberger, K.: Klinische Untersuchungen über Atmung and Blutgasen, Beitr. z. Klin. d. Tuberk. **80:** 305, 1932. Barach, A. L., and Richards, D. W. Jr.: Effects of Treatment with Oxygen in Cardiac Failure, Arch. Int. Med. **48:** 325-347 (Aug.) 1931. Barach, A. L.: The Treatment of Asphyxia in Clinical Diseases with Especial Reference to Recent Developments in the Use of Oxygen in Heart Failure, New York State J. Med., to be published.

3. Henderson, Yandell: Fundamentals of Asphyxia, J. A. M. A. **101:** 261 (July 22) 1933. This and the following paper contain references to all papers on asphyxia referred to but not specifically cited here. Henderson, Yandell, and Greenberg, L. A.: Acidosis: Acid Intoxication or Acarbia? Am. J. Physiol. **107:** 37 (Jan.) 1934.

prone pressure method introduced by Schafer[4] is the procedure of choice. It should always be continued until natural breathing returns or rigor mortis sets in. Lives have been lost by physicians interfering with the policeman, fireman or boy scout who was performing artificial respiration. It is easy to order a nonbreathing victim of drowning or electric shock or other acute asphyxia into an ambulance, but he will be dead before he reaches the hospital.

In using the Schafer method or any other form of artificial respiration, on a victim of drowning, the question of removing water from the lungs may be disregarded. If the body has been in fresh water, the water that reaches the lungs is quickly absorbed into the blood. If salt water is involved, the absorption is slower. But in either case there is really no way to get the water out of the finer tubes and chambers of the lungs by manipulation. If all of them are occluded, the circulation of the blood through the lungs is believed to be obstructed in a manner similar to Valsalva's experiment and death is immediate by so-called immersion shock. Fortunately there are generally enough spaces in the lungs still free from water to permit sufficient ventilation under artificial respiration to supply that minimum amount of oxygen which is necessary to maintain life. If life is thus maintained the victim is generally resuscitated, provided of course that the heart is still beating and the blood circulating.

Artificial respiration is also the measure of primary importance in electric shock, although it is effective only in cases in which respiration, but not the heart, has been stopped. If the heart has been thrown into fibrillation, no means now available can restore a coordinated pulsation and resuscitate the victim. There is distinct experimental progress toward restoration of coordinated heart action after electric shock,[5] but there is as yet no practical application of such laboratory observations requiring discussion here. If the heart has not been thrown into fibrillation, but only respiration is stopped, recovery under artificial respiration is brought about essentially as in cases of immersion.

In connection with artificial respiration, three recent practical developments deserve mention. One is the tilting board developed by Eve[6] in England and by Cornish[7] in California. This device is in principle a seesaw on which the victim is laid and rocked slowly through an angle of 30 degrees or more from the horizontal each way. Adjustable pegs are placed in holes in the board at the shoulders and feet to keep the body from sliding. When the head is lowered and the feet are raised, the weight of the abdominal viscera acts on the diaphragm to induce expiration. When the head is raised, the movement of the viscera and diaphragm feetward induces inspiration. If the body is completely flaccid, the victim should be laid on his face, so that the tongue will fall forward; otherwise on his back. The device is quite easily constructed by any carpenter and would probably prove useful at bathing places and in the accident rooms of hospitals for use in cases of concussion, morphine poisoning and other conditions of hypopnea and apnea. An apneic baby has been revived with it. It is also particularly adapted to use by laymen.

An apparatus for prolonged artificial respiration by compression of the chest has recently been described by Kerridge.[8]

The other development is of a different type; it is for use by physicians only. It is the device, recently developed by Flagg,[9] to facilitate the introduction of a sound into the trachea for the administration of intratracheal insufflation. It consists of an electrically lighted laryngoscope. Because of the flaccidity of the muscles of the mouth and throat in the victims of drowning and in asphyxial new-born babies, the larynx is readily made visible with this device and a tracheal sound is easily introduced. Through this sound a mixture of oxygen and carbon dioxide may be blown directly into the lungs. The principle involved is essentially that of artificial respiration by intermittent insufflation, as introduced by the late Dr. Meltzer.[10] There can be no doubt that some victims of submersion, of neonatal apnea and of collapse under surgical operations, particularly in the thorax, who can be resuscitated in no other way can be saved by this means. The apparatus will be useful as an attachment of the inhalator at large bathing places, such as Coney Island, where enough drowning and other accidents occur to justify regular medical attendants. The number of cases of drowning and of asphyxia of the new-born needing insufflation is, however, small compared to those needing only inhalation. The capacity of the apparatus to induce dilatation of the atelectatic lungs, especially in cases of birth shock and asphyxia pallida, contributes a marked advantage over simple inhalation; but it should be used with precautions against excessive intrapulmonary pressure. These precautions consist in setting the blow-off valve at not more than 25 mm. of mercury pressure. For the adult, 40 mm. is allowable.

The report of a referee of the Council on Physical Therapy indicates that in its present form the Flagg laryngoscope is somewhat too large for convenient use on infants and that the metal cannulae will also need some modification to prevent trauma. These are however details that can be easily improved. The revival of intratracheal insufflation for clinical use is a valuable contribution to the art of resuscitation.

During surgical operations in the thorax there is sometimes urgent need for artificial respiration. Apparatus of the general type used in physiologic laboratories would meet this need, if combined with intratracheal insufflation. Such an apparatus has recently been devised by Coryllos.[10a]

Reports based on the practical experience of obstetricians indicate that, in the mixtures of oxygen and carbon dioxide used for resuscitation of the new-born, high percentages of carbon dioxide—up to 20 or even 30—are found most effective for the initiation of spontaneous breathing in difficult cases but that, after spontaneous breathing has been established, percentages of 7 or 8, or even as low as 5 are sufficient. Such is the testimony of the referees to whom the Council on Physical Therapy has referred the infant resuscitation apparatus recently submitted for testing. It is probable

4. Schafer, E. A.: Harvey Society Lectures for 1907-1908, New York, 1909, p. 223.

5. Hooker, D. R.; Kouwenhoven, W. B., and Langworthy, O. R.: The Effect of Alternating Electric Currents on the Heart, Am. J. Physiol. **103**: 444 (Feb.) 1933. Williams, H. B.: Personal communication to the author on Resuscitation by Electric Countershock.

6. Eve, F. C.: Actuation of the Inert Diaphragm by a Gravity Method, Lancet **2**: 995 (Nov. 5) 1932. Killick, E. M., and Eve, F. C.: Physiologic Investigation of Rocking Method of Artificial Respiration, Lancet **2**: 740 (Sept. 30) 1933.

7. Cornish, R. E., cited in Lazarus, Dead and Alive, Time **23**: 49 (March 26) 1934.

8. Kerridge, P. M. T.: Artificial Respiration for Two Years, Lancet **1**: 786 (April 14) 1934.

9. Flagg, P. J.: Resuscitation, New York State J. Med. **33**: 395 (March 15) 1933.

10. Meltzer, S. J.: Simple Devices for Effective Artificial Respiration in Emergencies, J. A. M. A. **60**: 1407 (May 10) 1913.

10a. Coryllos, P. N.: Etiology, Prevention and Treatment of Postoperative Hemorespiratory Complications, J. Thoracic Surg. **2**: 384 (April) 1933.

that a high initial carbon dioxide mixture followed by a lower mixture would also be the most effective agents for resuscitation in cases of drowning. On theoretical grounds it would seem to me that both for the newborn and for the drowned 20 per cent of carbon dioxide in the stronger mixture and 7 per cent in the weaker should be enough. But, of course, practical experience, not theory, must determine the final decision.

For administering inhalation in all varieties of cases of asphyxia, the H-H Inhalator,[11] with the recent addition of a Flagg device, affords in general the best means of stimulating respiration after submersion, electric shock and carbon monoxide asphyxia. Several thousand of these inhalators are now in use with a very large saving of life. The Davis Inhalator [12] also has been approved by the Council on Physical Therapy. The infant resuscitators of the Ohio Chemical and Manufacturing Company [13] and of the Foregger Company [14] have both been found efficient and have recently received the approval of the Council on Physical Therapy. Both of these companies supply also excellent inhalators for administering carbon dioxide (from cylinders of liquid carbon dioxide) mixed with air in an open mask. The first, third, fourth, fifth and sixth of these appliances are made according to my designs.

The Sparklet Resuscitator, now advertised in medical journals, has possibilities of usefulness that have not as yet been developed to a point deserving of approval by the Council. The amount of the oxygen carbon dioxide mixture that one of the Sparklets affords is so small that it can be used effectively only for total rebreathing. But, used in this way, it should be valuable for the treatment of asphyxial new-born babies delivered in private homes. The amount of liquid carbon dioxide contained in a sparklet would be sufficient to stimulate respiration for a few minutes if the control apparatus regulated the flow effectively. But such is not now the case.

The Pulmotor [15] has been condemned so frequently in reports by committees of high scientific competence that, except for its name, it would long since have passed, as it should, into the limbo of things forgotten. Unfortunately the word "pulmotor" has become in popular speech a generic term for any and all respiratory and resuscitative devices and particularly for an inhalator. Because of this confusion of terms, the newspapers often report the resuscitations effected by means of inhalators as cases of "victims restored to life by the Pulmotor." Then some ill informed community buys one of these discredited devices for its fire department.

Recently another device has been brought out and vigorously promoted by sales agents, which is in all essentials, simply another pulmotor. As it is intended for use by laymen, it applies mechanical artificial respiration by means of a mask. It has, therefore, the same disadvantages as the original pulmotor; namely, leakage from the mask, inflation of the stomach, possibility of injury to the lungs by overdistention, and rapid and inefficient reversal of inspiration and expiration. If set to produce low pressures, such apparatus is ineffective; if set to high pressures, it is likely to injure the lungs. The apparatus has an inhalation attachment, but the airways are too small for full efficiency in supplying oxygen and carbon dioxide for natural breathing. This defect could be corrected; the pulmotor feature should be eliminated. The name of this device is the E and J Resuscitator. The inventors of apparatus of this type should learn that mechanical artificial respiration apparatus employing pressure and suction with a mask cannot be made effective with a mask or safe for use outside a laboratory or a hospital. Pressure and suction require intubation of the trachea, an operation that properly and legally can be performed only by physicians. The administration of pressure and suction with a mask sometimes works; but it is liable to fail when most needed. In the hands of laymen, such apparatus cannot be made free from serious danger of injury to the lungs.

A device for artificial respiration of a quite different order is the Drinker apparatus [16] and one of the same type offered by Emerson.[17] In such apparatus the entire person of the patient is enclosed in a steel chamber with the exception of the head. A rubber collar fits airtight, but comfortably, around the neck and intermittent suction, or alternating suction and pressure with precautions against excessive forces, are applied to the body within the chamber. The device finds its usefulness in maintaining artificial respiration for periods of days or weeks in cases of poliomyelitis with severe respiratory involvement. It has been used successfully in cases of neonatal apnea and atelectasis but appears to offer no considerable advantages over simple inhalation of oxygen and carbon dioxide in the easier cases of asphyxia of the new-born or over the Flagg technic in extreme cases. In the new-born the object is not, as in poliomyelitis, to supply prolonged artificial breathing but rather to get the child to breathing for itself.

The oxygen tents, now used in cases of pneumonia, have also possibilities of value, as yet undeveloped, as resuscitation apparatus, particularly in cases of extreme hemorrhage.

The lack of apparatus for measuring respiration is now one of the greatest deficiencies in medical technic. Measurement of respiration—in the sense of the volume of air breathed in liters per minute—is quite as important as a guide to prognosis and treatment in many disorders as is measurement of arterial pressure. The apparatus now used for determining basal metabolism could easily be modified to serve also as respirometers.

All subcutaneous, intravenous or intracardiac medication is harmful rather than beneficial in asphyxia.[18] Oxygen administered subcutaneously is absorbed too slowly to be helpful.[19]

CONFLICTING THEORIES OF ASPHYXIA [20]

In the development of resuscitation, practice has outrun theory. Resuscitation by means of carbon dioxide

11. The Mine Safety Appliances Company, Pittsburgh.
12. Davis Emergency Equipment Corporation, New York.
13. Ohio Chemical & Manufacturing Company, Cleveland.
14. Foregger Company, New York.
15. Report of the Commission on Resuscitation from Electric Shock, New York, National Electric Light Association, 1913. Report of the Committee on Resuscitation from Mine Gases, Technical Paper 77, U. S. Bureau of Mines, Washington, D. C., 1914. Work of the Commission on Electric Shock, editorial, J. A. M. A. **61:** 1637 (Nov. 1) 1913. Proceedings and Resolutions of the Third Resuscitation Commission, Science **48:** 563 (Dec. 6) 1918. Drinker, K. R.; Drinker, C. K., and Redfield, A. C.: J. Indust. Hyg. **6:** 109 (Aug.) 1923. Final Report of the Commission on Resuscitation from Carbon Monoxide Asphyxia, ibid. **6:** 125 (Aug.) 1923.
16. Warren E. Collins Company, Boston.
17. J. H. Emerson, Cambridge, Mass.
18. Henderson, Yandell: False Remedies for Carbon Monoxide Asphyxia, Science **78:** 408 (Nov. 3) 1933; Treatment of Carbon Monoxide Asphyxia, Current Comment, J. A. M. A. **102:** 217 (Jan. 20) 1934. Trautman, J. A.: Methylene Blue in the Treatment of HCN Gas Poisoning, Pub. Health Rep. **48:** 1443 (Dec. 1) 1933.
19. Singh, I.: Absorption of Oxygen from Subcutaneous Tissues, Quart. J. Exper. Med. **20:** 193, 1932.
20. A more detailed discussion and references to the extensive literature of the topics dealt with in this section are given in the papers quoted under reference 3.

is now justified mainly by the incontrovertible fact that in many forms of asphyxia this treatment is highly effective in saving life. But this fact is not greatly reinforced by theory. On the contrary, it has had to meet an extraordinary succession of obstacles in the form of adverse theories. Plausible theories are not easily refuted by facts unless the facts are reinforced by equally plausible alternative theories. In this case the principal obstructive theory is very plausible and very firmly intrenched; it is one of the foundations of modern biochemistry. The alternative theory is as yet crude and incomplete: a mere beginning for a sound conception of asphyxia.

When I [21] first proposed inhalation of carbon dioxide twenty-five or thirty years ago, the gaseous excretion, carbon dioxide, was still regarded as the physiologic opposite of oxygen. Its use in asphyxia or in any condition related to asphyxia, such as postoperative depression, was directly contraindicated. Asphyxia was considered to involve not only lack of oxygen but also excess of carbon dioxide and obstruction or stoppage of breathing. Investigations in this laboratory showed, on the contrary, that in carbon monoxide asphyxia there is excessive breathing and decrease of carbon dioxide. Low oxygen, low carbon dioxide and hypernea are concomitants in mountain sickness, in anesthetic depression and in other states related to asphyxia. In all such states, overbreathing and the development of a deficiency of carbon dioxide are among the conditions inducing the final depression and failure of respiration.

The demonstration by Haldane [22] and his collaborators of the preeminent part that carbon dioxide plays in the regulation of respiration in man facilitated the introduction of carbon dioxide as an agent by which anesthetists may control the breathing of patients under operation. But my advocacy of this use of carbon dioxide was based not merely on the control of breathing but to a greater extent on certain experimental observations on animals in this laboratory. These observations were that after anesthesia and operation the amount of carbon dioxide in the blood is diminished and that, contrariwise, conservation of the body's store of carbon dioxide largely counteracts postoperative depression of the circulation. The low carbon dioxide content of the blood was regarded as a form of acapnia.

Almost simultaneously, another theory [23] based on quite different grounds developed in biochemistry. Under that theory, as commonly interpreted and applied, inhalation of carbon dioxide after asphyxia or in any related condition would have been absolutely prohibited. It would intensify the acidosis that even a slight degree of asphyxia was supposed to induce.

This biochemical theory was beautifully clear and complete. It was based on the principles of physical chemistry. It afforded an apparently perfect theory of asphyxia and of acidosis. According to that theory, asphyxia develops as follows: Combustion in the tissues of the living body is first anaerobic; sugar breaks up into lactic acid. Under normal conditions, part of this lactic acid undergoes combustion; the remainder was supposed to be reconverted into sugar. Under oxygen deficiency, however, some of this lactic acid failed to be either burned or converted back to sugar. This acid then reacted with the alkali bicarbonates of the blood, neutralized them and thus decreased the carbon dioxide content and alkalinity of the blood. Asphyxia led to acidosis, and acidosis was acid poisoning.

In close accord with the requirements of this theory, it was demonstrated that a low p_H, low alkali bicarbonates and a considerable increase of lactic acid in the blood do occur in the terminal stage of asphyxia and of all related conditions. Biochemists therefore gave warning that inhalation of carbon dioxide, which is the anhydrous form of carbonic acid, must intensify asphyxial acidosis dangerousiy, perhaps even fatally.[20]

Faced with such opposition—then theoretically insurmountable—resuscitation by inhalation of carbon dioxide could be introduced only clinically, and lives thus saved by avoidance of theory. My discussions of practical means of resuscitation dealt strictly with facts. No well rounded alternative theory was—or is even now—available. With this suppression, inhalation of carbon dioxide was successfully introduced into the surgical field, where it soon proved its usefulness. Its success was complete in the nonmedical field of carbon monoxide asphyxia, where treatment is administered by the rescue crews of city fire departments and theory offered no obstacle.

The justification for such unconventional disregard of theory and the authorities lay strictly in facts. It was found in experiments on animals in this laboratory that so-called asphyxial acidosis differs profoundly from a true acid intoxication. The alkali of the blood is not lost from the body in asphyxia, nor is it permanently neutralized; it is merely rendered occult. Dogs that had been made truly acidotic by intravenous injection of dilute hydrochloric acid were quickly overwhelmed, or even killed, by inhalation of carbon dioxide. On the other hand, animals rendered pseudo-acidotic, or acarbic, by asphyxia were quickly restored to a normal condition by such inhalation. And at this point a fact was discovered that may afford a beginning for a sound theory of asphyxia. This fact is that inhalation of carbon dioxide, instead of intensifying "acidosis" in an acarbic animal or man, quickly recalls the alkali bicarbonates in the blood to their normal amount.[20] In this respect carbonic acid (i. e. carbon dioxide) differs from such acids as hydrochloric. The latter would kill at, or above, a point (p_H 7.0) to which the blood of an asphyxiated man, animal or new-born baby may be acidified with carbonic acid with no harm whatever during resuscitation.

This mobilization of alkali under the influence of carbon dioxide in the presence of oxygen is a vital reaction occurring not only in animals but even in plants, such as the potato. The contrary reaction occurs in men and animals during the development of asphyxia. Under deficiency of oxygen the carbon dioxide in the blood is also diminished; and following this diminution a considerable part of the blood alkali is somehow neutralized or immobilized. It is highly significant that this sequence occurs not only during the development of asphyxia under carbon monoxide but equally in the asphyxia of a baby before birth. The

21. Henderson, Yandell: Acapnia as a Factor in Shock, Brit. M. J. **2**: 1812, 1906; Fatal Apnea and the Shock Problem, Bull. Johns Hopkins Hosp. **21**: 235 (Aug.) 1910; Acapnia and Shock, Am. J. Physiol. **21**: 126 (Feb.) 1908; **23**: 345 (Feb.) 1909; **24**: 66 (April) 1909; **25**: 310, 385 (Feb.) 1910; **26**: 260 (June) 1910; **27**: 152 (Nov.) 1910. Henderson, Yandell, and Harvey, S. C. P., ibid. **46**: 533 (Aug.) 1918.

22. Haldane, J. S.: Respiration, New Haven, Conn., Yale University Press, 1922.

23. Henderson, L. J.: Blood, a Study in General Physiology, New Haven, Conn., Yale University Press, 1928. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company **1**: 868-1018, 1931.

former can lose carbon dioxide through the lungs; the latter cannot. The orthodox theory, which fails in respect to these matters, has failed also, it may be noted, in others. It has failed particularly in respect to the value of alkaline therapy in diabetic acidosis; and extensive revision has been needed in respect to the part supposedly played by lactic acid in muscular contraction. So fallible a theory should not be allowed longer to interfere with the saving of human life.

CONTRASTING INFLUENCES OF OXYGEN AND CARBON DIOXIDE [20]

Even when the obstacle of "acidosis" had been in practice largely surmounted, or at least circumvented, a third theoretical obstacle remained. Until quite recent years this imaginary "lion in the path" has blocked the application of carbon dioxide to what should be its most important field: resuscitation of the asphyxiated newborn. Surely—so it was argued—an asphyxiated baby or drowned adult must have already a supernormal respiratory stimulus in its blood. Because of the accumulated carbon dioxide, lowered p_H and increased lactic acid in its blood, it should not need any additional stimulus. How, then, could one justify administration of carbon dioxide in cases of asphyxia neonatorum?

It happened however that, in cities where inhalators were available, many babies were resuscitated by the rescue crews of the fire departments, called in by physicians after all the ancient procedures—slapping, swinging, and dipping in cold water—had failed. For a time even the hospitals invoked this aid. Now the large majority of hospitals are equipped with inhalational apparatus and cylinders of carbon dioxide diluted to various percentages in oxygen.

These facts forced a reconstruction of theory with the result that, in this laboratory at least, a conception that has been recently widely current in physiology was rejected. That conception was that the p_H of the respiratory center itself was the dominant factor in the control of breathing and that it is through this factor that both oxygen and carbon dioxide act.[23a] Instead, it was seen that the most practical conception of respiration requires a sharp distinction between the influences of oxygen and of carbon dioxide in the control of breathing. Neither oxygen nor oxygen deficiency acts as a stimulus. Instead, oxygen largely determines the sensitivity of the neurorespiratory system to its specific stimulus, which is carbon dioxide. Slight oxygen deficiency increases the sensitivity, so that even the normal amount of carbon dioxide affords an excessive stimulus, and hyperpnea results. On the other hand, extreme deficiency of oxygen diminishes the sensitivity and finally paralyzes the system. And the greater the depression of sensitivity, the stronger the stimulus required to excite respiration to activity. This is not a theoretical explanation; that is still to be developed. It is a practical statement of the unique effectiveness of high concentrations of carbon dioxide, up to 20 or even 30 per cent, in extreme cases of asphyxia neonatorum, while lower percentages are sufficient in all moderate cases.

After the presentation of these conceptions, the more important forms of asphyxia, and their characteristics in relation to resuscitation, may now be considered in some detail.

(To be continued)

23a. Gesell, R.: The Chemical Regulation of Respiration, Physiol. Rev. **5**: 551 (Oct.) 1925.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DEXTROSE (See New and Nonofficial Remedies, 1934, p. 270).

The following dosage form has been accepted:

Ampoules Dextrose (d-Glucose) 50 Gm., 100 cc.: Each ampule contains dextrose (*d*-glucose) 50 Gm., in distilled water, to make 100 cc.

Prepared by the Lakeside Laboratories, Inc., Milwaukee. No U. S. patent or trademark.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED) (See New and Nonofficial Remedies, 1934, p. 393).

United States Standard Products Company, Woodworth, Wis.

Diphtheria Toxoid, Alum Precipitated, Refined.—Prepared by treating diphtheria toxin with 0.3 to 0.4 per cent formaldehyde at temperatures of from 35 to 40 C. until its toxicity is reduced to the point where five human doses, injected into a guinea-pig, produce no symptoms of diphtheria poisoning. The toxoid is treated with a 4 per cent solution of potassium aluminum sulphate, the total amount of which is not to exceed 20 mg. per human dose of the finished product. The resulting precipitate is washed with sterile physiologic solution of sodium chloride and resuspended in physiologic solution of sodium chloride to which merthiolate (1:10,000) has been added. The product is tested for antigenic potency according to the method prescribed by the National Institute of Health: guinea-pigs, weighing 500 Gm., given one human dose, must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood.

Marketed in packages of one 1 cc. vial (one immunizing dose); in packages of ten 1 cc. vials (ten immunizing doses); and in packages of one 10 cc. vial (ten immunizing doses).

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

SQUIBB ADEX TABLETS 10-D NOT ACCEPTABLE FOR N. N. R. (II)

In 1932 the Council published a report on this product declaring it unacceptable because the application of a proprietary name to a cod liver oil concentrate with viosterol is not in the interest of the medical profession or the public (THE JOURNAL, March 19, 1932, p. 982). Subsequently the firm expressed a desire to meet the wishes of the Council in the matter of the name for this product and proposed the name "Squibb A and D EXT. Tablets 10-D." The product was then declared to be "a concentrated extract of the vitamins of Cod and Halibut Liver Oils with Viosterol." The firm was informed that the proposed name was not acceptable, since it is essentially a proprietary name differing from "Adex" only in spelling. The firm later proposed the name "Squibb Vitamin A and D Tablets." The Council could not recognize this name, because the product is not pure vitamins A and D; this name does not indicate whether the product is an extract or a concentrate. The firm has been informed, however, that the Council has voted to accept such products under the nonproprietary name "Tablets Vitamins A and D Concentrate" with the understanding that the label state the genesis of vitamins as well as the number of units from each source. Although the most recent available labels for Adex Tablets as well as the firm's proposed label for "A and D EXT. Tablets" declare the sources of the vitamins contained, none give the amount taken from each source.

After considerable correspondence, the firm informed the Council that since it would mean considerable loss to change the name "Adex" and to adopt a longer name in conformance with the Council's desire for a more informative designation, it had reluctantly decided to continue the name "Adex." The firm expressed the desire to adhere "in every other respect" to the rules of the Council concerning the marketing of this

product and submitted three advertisements which had been prepared as a part of the fall campaign in promotion of Adex Tablets, asking that the Council consider the acceptability of these advertisements. The Council could not undertake to supervise and endorse advertising for an unacceptable product over which it has no real control. The firm was informed, however, that the Council reserves the right to criticize such advertising on its own initiative.

The Council feels that it is irrational to have a series of special names for cod liver oil concentrate tablets, since the common features of these are more important than the differences. The Council further feels that in the case of Adex Tablets neither the higher dosage content nor the special process of protecting the vitamin content (if, indeed, tablets need such protection) represents such an improvement over available preparations as to justify the use of a coined proprietary name.

Since E. R. Squibb & Sons refused to make the name acceptable, the Council reaffirmed its rejection of Squibb Adex Tablets 10-D and authorized publication of the foregoing statement.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING AMENDED RULE.

RAYMOND HERTWIG, Secretary.

SPECIAL PURPOSE FOODS

"Special Purpose Foods" with usefulness restricted to specific purposes, such as inclusion in diets for obesity or special morbid conditions, will be judged on the basis of their probable usefulness and special adaptability. Food products with very low content of dextrose formers, products with little or no caloric content, and products with features of special adaptability and usefulness for the preparation of special diets, will be accepted provided the package label and advertising meet requirements set forth in the following paragraph and the cost is not wholly out of proportion to the possible usefulness of the products.

The labels and advertising shall prominently display, in easily legible type, the designation "Special Purpose Food," a statement listing all ingredients in the order of decreasing predominance by weight, and the special purpose of the product. These statements, so far as is practical, should be in close proximity to the trade name. In addition, as much of the following information should be given as is significant to permit the intelligent use of the particular product by the consumer: specific properties, vitamin and mineral content, the calories per gram or ounce, and the grams each of carbohydrate, protein and fat per portion.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

CROSSE & BLACKWELL TOMATO JUICE

Manufacturer.—The Crosse & Blackwell Company, Baltimore.

Description.—Tomato juice, retaining in high degree the natural vitamins. Seasoned with salt.

Manufacture.—Tomatoes are washed in running water and then by water sprays. The ripest and those free from blemishes are selected for preparing the juice and are trimmed, chopped and preheated to 77 C. in tubes in an atmosphere of steam. The juice is expressed in a steam atmosphere, delivered to tanks where salt is added, passed into the bottom of a filling tank, and at 75 C. filled into cans by gravity. The cans are sealed at once, processed at 100 C. and cooled to 38 C. The juice packed in bottles is homogenized before filling.

The equipment and method of preparation are especially designed to prevent incorporation of air in the juice and to protect efficiently the natural vitamins. Within fifteen minutes after expression of the juice, it is sealed in the containers.

Analysis (submitted by manufacturer).—

	per cent
Moisture	94.3
Ash	0.8
Sodium chloride	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Reducing sugars as dextrose before inversion	2.7
Reducing sugars as dextrose after inversion	2.8
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	3.2
Acidity as citric acid	0.4

Calories.—0.2 per gram; 6 per ounce.

Vitamins.—Process is efficient to retain vitamins A and C in high degree.

Claims of Manufacturers.—Especially prepared for table use and as a vitamin C supplementary food for infant feeding.

GOLDEN FRUIT BRAND PURE LEMON JUICE

Manufacturer.—Golden Fruit Products Co., Los Angeles.

Description.—Processed lemon juice, retaining in high degree the natural vitamin content.

Manufacture.—Ripe washed lemons are sorted by hand to remove any spoiled fruit and are automatically halved and reamed by machine. The juice is centrifugated, run through a block tin coil submerged in hot water (93 C.) and machine bottled in clean, heated dark brown bottles. The bottled juice is submerged in hot water, brought to a temperature of 66 C. in from fifteen to twenty minutes, and sealed.

Analysis (submitted by manufacturer).—

	per cent
Moisture	91.7
Total solids	8.3
Suspended solids	0.3
Ash	0.4
Fat (ether extract)	0.01
Protein (N × 6.25)	0.4
Reducing sugars as invert sugar	1.9
Sucrose (copper reduction method)	0.0
Crude fiber	0.0
Carbohydrates (by difference)	1.5
Titratable acidity as citric acid	6.0
Iron (Fe)	0.0013
Phosphoric anhydride (P_2O_5)	0.038 as P 0.017
Copper (Cu)	1.9 parts per million
Artificial coloring	none
Preservatives	none

Calories.—0.3 per gram; 9 per ounce.

Vitamins.—Chemical analysis for ascorbic acid of sample stored for five months shows retention of 92 per cent of ascorbic acid of the freshly expressed juice indicating that vitamin C is retained in high degree.

Claims of Manufacturer.—For all uses of lemon juice.

CELLU JUICE-PAK APRICOTS

Distributor.—The Chicago Dietetic Supply House, Inc., Chicago.

Packer.—Hunt Bros. Packing Company, San Francisco.

Description.—Processed, halved and stoned apricots packed in undiluted juice without added sugar.

Manufacture.—Tree ripened fruit is halved, pitted, washed under water sprays, sorted (all defective fruit removed), graded, washed and placed in cans, to which is added undiluted, filtered juice expressed from off-size apricots. The treatment thereafter is essentially the same as for Cellu Juice-Pak Bartlett Pears (THE JOURNAL, Aug. 4, 1934, page 341).

Analysis (submitted by distributor).—

	per cent
Moisture	87.3
Ash	0.7
Fat (ether extract)	0.2
Protein (N × 6.25)	0.4
Reducing sugars as invert sugar	6.8
Sucrose	2.6
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	10.9

Calories.—0.5 per gram; 14 per ounce.

Claims of Manufacturer.—Packed in undiluted apricot juice without added sugar.

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SATURDAY, SEPTEMBER 8, 1934

THE COMPOSITION OF TISSUE PROTEINS

As the principal component of the solid matter of protoplasm and of much of the intercellular material of tissue is protein, the body must depend to a considerable extent on this nitrogenous material for its growth and maintenance. The proteins of the tissues are synthesized from the assortment of amino acids that accumulate in the cellular and intercellular fluids during the hours immediately following a meal containing protein. These synthetic products appear to be characteristic for each tissue of an animal. For example, hemoglobin, the so-called respiratory protein of the blood, will differ in its amino acid make-up from the protein of the muscle. The mechanism by which each tissue selects particular amino acids in the right proportion to form its own specific nitrogen-containing complexes is unknown, but recent investigations have strikingly supported the remarkable specificity manifested by the mammalian organism in these biochemical processes. Attention has been drawn to the basic amino acids arginine, histidine and lysine, the so-called hexone bases, and the constant proportions of these amino acids, which are obtained by hydrolysis of tissue proteins.

Investigators at Yale University have presented evidence [1] for the hypothesis that "the protoplasm of a specific organism, tissue, cell mass, or certain derivatives thereof, is composed of a labile nitrogenous chemical aggregate, tissue protein, which yields arginine, histidine and lysine in molecular ratios that are approximately fixed and characteristic for that tissue as it exists in various classes of animals." Furthermore, considerable significance attaches to the observation that the ratios of basic amino acids obtained from the total protein of human serum is constant even though the amount of total protein may vary 100 per cent and the value of the ratio of serum albumin to serum globulin may fluctuate widely. It is suggested that "tissue proteins are built upon an 'anlage' of arginine, histidine and lysine," and stress is placed on the "primary importance of the basic amino acids in the genetic and embryological development of the tissue protein as it exists in protoplasm."

Additional evidence for the constant, specific composition imparted to new tissue proteins formed in the animal body is afforded through experimental efforts to alter the composition of the developing hen's egg by variation in the dietary regimen of the bird. Workers in Ontario [2] have studied the influence of diet on the composition of the proteins of eggs; it was not possible to obtain any clear evidence that the diet of the hen had an effect on the percentages of the various amino acids studied. Similar extensive investigations have been recently described by Calvery and Titus.[3] These authors were unable to find any marked differences in the composition of the same proteins prepared from the eggs produced by pullets raised and kept on diets having entirely different sources of nitrogenous foodstuffs. This ability of the organism to put together ten or fifteen or even more different individual amino acids to produce a protein characteristic of a particular tissue must involve specific synthetic processes the mechanism of which challenges the most vivid of investigative imaginations.

1. Block, R. J.: J. Biol. Chem. **103:** 261 (Nov.) 1933; **104:** 339, 343 (Feb.) 1934; **105:** 455 (June), 663 (July) 1934. Block, R. J., and Vickery, H. B., ibid. **93:** 113 (Sept.) 1931. Block, R. J.; Darrow, D. C., and Cary, M. Katherine, ibid. **104:** 347 (Feb.) 1934.

2. MacFarlane, W. D.: Fulmer, H. L., and Jukes, T. H.: Biochem. J. **24:** 1611 (no. 6) 1930.

3. Calvery, H. O., and Titus, H. W.: J. Biol. Chem. **105:** 683 (July) 1934.

CONTRACEPTION AND BIRTH CONTROL

In a test of more than 100 so-called contraceptives undertaken by the Birth Control Clinic Research Bureau, New York, forty-five were discovered to be unreliable. Today the marketing of devices, drugs and technics for the prevention of conception is in the realm of big business. Indeed, the marketing of books on the subject has also come to be an exceedingly profitable venture.

In a recent consideration of birth control as a business, Elizabeth H. Garrett [1] credits the tremendous recent expansion to a court decision which affirmed that sales of materials for birth control were legal unless the seller was in complicity with drugstores to resell illegally. The court also said: "The intention to prevent a proper medical use of drugs or other articles merely because they are capable of illegal uses is not lightly to be ascribed to Congress." The decision was handed down in 1930. Immediately the country began to be flooded with all sorts of material sent in circulars through the mails to doctors, druggists and the public. Advertisements for feminine hygiene began to appear in the most dignified periodicals. More recently the term "marriage hygiene" has been developed to point

1. Garrett, Elizabeth H.: For Legalized Birth Control: Birth Control's Business Baby, New Republic **77:** 269 (Jan. 17) 1934.

the use more specifically. Today there are hundreds of jellies, suppositories, rubber devices and systems sold for such purposes throughout the country, as well as many antiseptics that have about the same efficiency as water. A survey in the western part of Florida in 1932 is said to have revealed the information that preventives were sold in 376 places besides drugstores, including gas stations, garages, restaurants, soda fountains, barber shops, pool rooms, cigar stands, news stands, shoe shining parlors and grocery stores. The president of one concern manufacturing a rubber device stated that its business marketed 12,000 gross a month. At the recent annual session of the American Medical Association, held in Cleveland, a resolution was introduced requesting the Board of Trustees to set up some machinery for the scientific study of the various medicaments and devices available; the resolution was tabled by the House of Delegates.

A ray of light in the situation is the so-called Ogino-Knaus biologic law of nature, which deals with the establishment of the so-called safe period. The views of Ogino [2] have recently been made available in a translation of his Japanese book on the subject. Knaus's [3] research has just been published in book form in German with a menstruation calendar neatly inserted in the inside cover, and the volume by Latz [4] dealing with this method has sold well nigh unto 100,000 copies. Furthermore, all sorts of slide rules, calendars and record sheets are being offered to the public by interested manufacturers as a means of promoting this technic for the prevention of conception.

The views of Ogino were advanced in 1924 and he received the prize of the Japanese Gynecologic Society for his work in 1925. Knaus credits his investigations to a stimulus given by the work of Prof. A. J. Clark, published in London in 1924, on the physiology and pharmacology of the uterine musculature, and to the studies that were continued under the late Prof. W. E. Dixon in Cambridge from April 1925 onward. Knaus arrived independently at the establishment of the "safe period." He points out that Ogino's work was not known in Europe when in 1929 he published his own statements on the subject. The idea of a "safe period" goes back, of course, to the Mosaic laws, which through their establishment of ritual cleansing and other processes for women definitely indicated the period during which the woman was most likely to conceive. In fact, Genesis, chapter 1, verse 28, is an order to utilize the fertile period and multiply as the sands of the sea.

Briefly, it is claimed that the five days from the twelfth to the sixteenth day before a subsequent menstruation is the period of ovulation and that this period is the period during which fertilization is most likely. Within twenty-four hours after ovulation is completed the safe period probably begins. It is fairly well established that the fertilizing ability of the spermatozoa is within a three day period. In the vast majority of cases the human conception period is therefore within the eight days from the twelfth to the nineteenth day before a subsequent menstruation. Means have been developed for careful recording of the menses for menstrual cycles of various durations from twenty-three to thirty days in order to set forth clearly the sterile and safe periods.

Because of the biologic character of this means of prevention of conception it has not apparently been opposed by church, state or other organizations in the manner in which more artificial methods have been opposed. Indeed, it has even had endorsement from some religious groups. Enough evidence has already been established to indicate that a strict observance of the method is insurance of sterility even beyond that associated with the employment of most of the contraceptive apparatus and medicaments. In the vast majority of cases it will, of course, be desirable for the family physician to instruct his patients as to the basis of this method of birth control and as to proper employment. Latz states that he received only one complaint against the system for every 4,000 books sold and in instances in which investigation was possible it was discovered that the employment of the method had not been intelligent. Smulders in Holland has made available records of many thousands of cases of successful practice of this method of birth control.

In view of the availability of this technic, depending on a knowledge of biology, and in view of the tremendous expansion of the business aspects of birth control already mentioned, it would seem to be exceedingly important for some authoritative body to undertake a suitable study of the materials and methods of promotion now being exploited in this country. Whether or not legislation eventually ensues that will throw open the mails and the press to suitable discussion of the subject, the situation now prevailing is warrant for some type of action leading to scientific control.

2. Ogino, Kyusaku: Conception Period of Women, Harrisburg, Pa., Medical Arts Publishing Company.
3. Knaus, Hermann: Die periodische Fruchtbarkeit und Unfruchtbarkeit des Weibes, der Weg zur naturlichen Geburtenregelung, Vienna, Wilhelm Maudrich.
4. Latz, L. J.: The Rhythm of Sterility and Fertility in Women, Chicago, Latz Foundation.

SYNERGISTIC ETIOLOGY OF POLIOMYELITIS

If normal rabbits are injected intravenously with sublethal doses of cholera vibrios, the micro-organisms usually "localize" in the intestinal mucosa, the blood and most of the extra-enteric tissues becoming free from the injected bacilli. The resulting enteric carriers of the comma bacillus usually do not show recognizable cholera symptoms. If, however, these carriers are injected intravenously with alien bacterial products, such as Bacillus coli or Bacillus proteus filtrate, a violent local hemorrhagic or desquamating enteritis results,

often accompanied by severe or even fatal systemic toxemia. This nonspecific or synergistic local and constitutional reaction was first described in 1924 by Sanarelli,[1] who characterized it as an "epithelial shock" or "epithelaxie."

"Sanarelli anaphylaxis" is not apparently confined to the enteric tissues, however. Shwartzman,[2] Sickles,[3] and Freund and Smith,[4] for example, found that a wide range of bacterial products injected intracutaneously into rabbits will render the injected skin areas nonspecifically hypersensitive to heterophile factors. Violent hemorrhagic reactions may occur in the prepared skin areas on the intravenous injection of such substances as agar, gelatin, india ink or soluble starch, or with a wide range of normally nontoxic bacterial filtrates. Gratia and Linz [5] have described a similar nonspecific allergic syndrome in locally infected subcutaneous tissues. Bordet [6] found equally pronounced local Sanarelli reactions in experimentally inoculated lymph nodes and other retroperitoneal tissues. He describes a violent nonspecific and often fatal synergistic shock in tuberculous peritonitis, for example, on the intravenous injection of Bacillus coli filtrate. This nonspecific sensitivity of tuberculous animals has, of course, long been known to immunologists, having been described as early as 1891 by Roemer.

While the phenomenon of "nonspecific allergy" [6] is of interest in its bearing on theories of specific antibody production, it is also suggestive with regard to many practical problems of clinical medicine. Hanger [7] has described a synergistic syndrome in certain infections of the upper respiratory tract in rabbits. He found, for example, that many upper respiratory carriers of Bacterium lepisepticum are without demonstrable symptoms. Explosive allergic reactions occur in the nasal mucosa, however, on the intravenous injection of heterophile bacterial filtrates, giving symptoms commonly designated as "snuffles." This strongly suggests that in many cases "snuffles" is of synergistic or duplex etiology, owing to a local and perhaps symptom-free infection of the nasal mucosa "accentuated" by mildly toxic bacterial products absorbed from the gastrointestinal tract.

Hanger's observation is pertinent, since Toomey [8] has recently reported experimental evidence suggesting a somewhat similar synergistic or duplex etiology for poliomyelitis.

1. Sanarelli, G.: Experimental Cholera, Ann. de l'Inst. Pasteur **38:** 11 (Jan.) 1924.
2. Shwartzman, Gregory: J. Exper. Med. **54:** 1 (July) 1931; **56:** 291 (Aug.), 687 (Nov.) 1932; **57:** 857 (May) 1933.
3. Sickles, Grace M.: Local Skin Reaction Obtained by Intravenous Injection of Agar Following Intracutaneous Inoculation of Meningococcus Toxin, J. Immunol. **20:** 169 (Feb.) 1931.
4. Freund, J., and Smith, W. F. Jr.: Proc. Soc. Exper. Biol. & Med. **31:** 1104 (June) 1934.
5. Gratia, A., and Linz, R.: Compt. rend. Soc. de biol. **106:** 1251 (No. 13) 1931.
6. Bordet, Paul: Compt. rend. Soc. de biol. **114:** 572, 574 (No. 31) 1933.
7. Hanger, F. M. Jr.: Proc. Soc. Exper. Biol. & Med. **25:** 775 (June) 1928.
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Current Comment

EPIDEMIC ENCEPHALITIS

The symposium on epidemic encephalitis appearing in THE JOURNAL this week (pp. 726-735) and to be concluded in the next issue is an exceptional account of an unusual type of epidemic encephalitis. The St. Louis epidemic of 1933 in many respects was unlike the infectious encephalitis that has prevailed in other sections of the United States in recent years and which had come to be known as the von Economo type. In fact, the exact nature of this outbreak was not recognized until after the opportunity had presented itself to perform the first necropsy. The closest precedent for the St. Louis outbreak was an epidemic of thirty-eight cases that occurred in the summer of 1932 in Paris, Ill. There was much similarity also to the type of disease in the great epidemic that occurred in Japan in 1924. The St. Louis epidemic has the distinction, Neal says, of being the only outbreak of epidemic encephalitis in which the etiologic agent has been definitely established. This is a newly isolated filtrable virus that was pathogenic for mice and less so for rhesus monkeys. It was thought that the virus was the same type as the Japanese type B, but at least serologic differences were demonstrated when convalescent serum was obtained from Japan. Strains of the St. Louis virus were isolated in two different laboratories. The research and investigation of the St. Louis epidemic were extremely well done by the St. Louis medical schools, local physicians and health authorities, experts from the United States Public Health Service, the U. S. Army, and other organizations. It represented a modern, well coordinated, cooperative attack on the problems concerned. Epidemics of encephalitis usually start in the summer or in the autumn. Some public health departments have announced that the disease is at present on the increase in their localities. Physicians should become familiar with the facts available on this unusual type of encephalitis, as presented in this symposium.

THE INCIDENCE OF TRICHINOSIS

Despite the wide dissemination of popular dietary knowledge, frequent examples continue to occur of cases of diseases which, although not of primary importance from the point of view of a major health problem, are completely preventable. The incidence of trichinosis affords an interesting illustration. Sporadic cases, as well as small epidemics, of trichinosis occur throughout the world with disconcerting frequency. German reports show that in 1923 and 1924 there were 150 cases with one death at Karlsruhe and, in 1926, 100 cases and six deaths in Klingenthal.[1] In Spain in 1915 there were 145 cases with seventeen deaths.[1] In the United States, recent cases are reported in the literature only because of some special aspect. A group of eleven cases with recovery was recorded in New York

1. Quoted in Frant, Samuel: Five Years' Experience with Trichinosis in New York City, Pub. Health Rep. **49:** 869 (July 27) 1934.

State in 1932.[2] In the same year [3] there was an account from California of an outbreak of human trichinosis with one death following the ingestion of trichinous bear meat in the form of "jerky." In this instance the brown bear was the cause of infection, whereas customarily pork is the offending meat. Two recent reports dealing with trichinosis serve to emphasize the fact that an unusually large number of cases has come to light during the past few years. An outbreak arising from the ingestion of home-made sausage and involving forty-three persons was reported last year in New Jersey.[4] An interesting account by the United States Public Health Service [1] presents epidemiologic data on 166 cases of trichinosis reported to the New York City Department of Health for the years 1929-1933 inclusive. It is of considerable significance that the ingested pork products have frequently been approved by the United States Department of Agriculture. This serves to emphasize that the usual government inspection of fresh pork and pork products is by no means an adequate criterion of freedom of the pork from trichinae, a fact repeatedly emphasized by the United States Department of Agriculture.[5] In view of the fact that complete cooking will absolutely prevent the disease, every one should be educated to the importance of eating only thoroughly cooked pork and pork products.

Medical Economics

THE WAYNE COUNTY MEDICAL SOCIETY, DETROIT, PLAN

Complete medical service without the use of the insurance principle is being offered and given to wage earners of Detroit through a plan developed and put into operation by the Wayne County Medical Society, Detroit. A demonstration set-up is bringing medical care to hundreds of employed persons of small means, people who do not want paternalism or charity but merely credit.

The Wayne County Medical Society plan, originated by Dr. Ralph H. Pino of Detroit, was very carefully scrutinized by the Wayne County Medical Society for more than eighteen months before it was approved by the society's council, Feb. 16, 1934. The board of trustees then appropriated sufficient money to inaugurate and maintain a bureau to put the plan into operation. It is owned and operated exclusively by the Wayne County Medical Society, and the administrative office is located in the society's building at 4421 Woodward Avenue, Detroit.

Eliminating the salaried class, which is able to handle its own medical problems, the remaining three classes of people in Detroit can procure medical service through the agency of the Wayne County Medical Society:

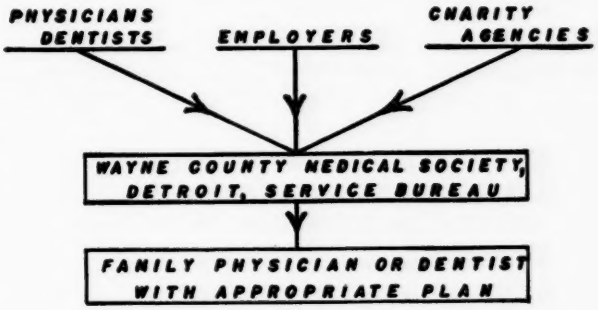
1. The unemployed on welfare rolls receive home and office medical service by the family physician, dentist, and so on, through the Medical-Dental Bureau, operated by the Wayne County Medical Society in its building. The cost of this agency is met by the FERA.

2. The unemployed not on welfare rolls are cared for in Detroit through the Medical Relief Committee on the Wayne County Medical Society. The family physician or volunteers who serve these people with home and office care at no fees, or at small fees assist the patient to maintain his self respect.

3. Employed persons earning small wages or salaries are cared for in Detroit by the bureau developed from the Wayne County Medical Society plan.

This plan offers complete medical care, comprising the services of physicians, hospitals, dentists, nurses and pharmacists, at a fee that can be paid by easy time payments within a year's time or less.

SOURCES OF REFERRED PATIENTS



NO MEDICAL DOLE FOR EMPLOYED WORKERS

The purpose of the Wayne County Medical Society Bureau is to assure employed people of modest income that they can go to the physician of their choice and receive necessary medical service when they need it. Furthermore, the bureau works out a plan for them whereby the account can be paid from week to week.

Those people who for financial reasons are neglecting their health are encouraged to get in touch with the bureau. Because they have no cash reserve is no reason that medical service must come to them through the agency of free dispensaries and tax supported hospitals and clinics.

PROFESSIONS UNITE TO GIVE SERVICE

The bureau is a demonstration in cooperation. Five professional groups (physicians, hospitals, dentists, nurses and pharmacists) are working together to provide high-grade services to the employed worker of small means. Industrial concerns, realizing that healthy workers are more efficient and desirable, cooperate by (1) telling employees to see their family doctors; (2) verifying employment wages and giving credit information to the Bureau on request; (3) assisting in the collection of a fair fee, based on the employee's ability to pay.

Some idea of the immense amount of work necessary to make this plan a success may be gained from the following data: There are over 7,000 units of medical service (physicians, dentists, nurses, pharmacists and hospitals) in Detroit and Wayne County. There are over 2,400 industrial units or employers (factories, shops, and the like) in the same area. The cooperation of all these is necessary to the complete success of this demonstration. The staff at the Wayne County Medical Society is working constantly to establish these contacts and to create the organization necessary to care for all patients who apply at the bureau for aid. It will require more than a year of intensive effort to complete arrangements so that every employer and worker in Detroit and Wayne County will know of this opportunity for service offered by the Wayne County Medical Society.

TEN POINTS

The essential features of the medical service plan may be briefly summarized as follows:

1. The Wayne County Medical Society headquarters become a coordinating center (with a social service set-up) for those cases which require assistance in obtaining and paying for

2. Reifenstein, E. C.; Allen, E. G., and Allen, G. S.: Trichiniasis, Am. J. M. Sc. **183**: 668 (May) 1932.
3. Walker, A. T.: Trichiniasis, J. A. M. A. **98**: 2051 (June 11) 1932.
4. Kilduffe, R. A.; Barbash, Samuel, and Merendino, A. G.: Am. J. M. Sc. **186**: 794 (Dec.) 1933.
5. Swartz, B.: U. S. Dept. Agric., Bureau of Animal Industry, Leaflet 34, May 1929.

complete medical service, including hospitalization and medical, dental, nursing and pharmaceutic service.

2. The members of the professions become the active staff caring for patients. All forms of medical care, consultation, x-ray and laboratory procedures are to be performed in the office or laboratory of the physician or at the hospital where he takes his patients.

3. This plan includes hospitalization—all the major hospitals of Detroit are cooperating, except one.

4. Arrangements have been and are being made with industrial concerns to make this service known to their employees. The factories and shops are cooperating in giving information and in the collection of accounts. To date the plan has received an enthusiastic welcome by each employer approached.

5. All cases in which the benefits of the coordinating plan are desired will be registered at the Wayne County Medical Society headquarters and referred to the family doctor, if the patient has one. If the patient has no physician, he is asked to select one. The patient will be given an identification card to be presented by him to the physician selected.

6. If several physicians and a hospital cooperate in the care of a case, the bills for fees will be combined into one bill and terms will be arranged according to the patient's ability to pay. The physician and the hospital set the fees—not the bureau. Payments received by the central bureau will be distributed to each cooperating physician, hospital, dentist or nurse.

7. This plan preserves the recognized patient-physician relationship. It does not affect compensation cases. The patient always has a free choice of physician or dentist and the physician has free choice of hospitals, specialists and laboratories, exactly as carried on in private practice.

8. The most important feature of this plan is that it places complete medical and hospital services within the reach of every worthy patient and provides an easy payment plan for the settlement of medical bills.

9. The plan should increase the health and happiness of Detroit and Wayne County citizens, as it provides a method whereby people can procure needed medical services. It should remove a large proportion of the financial reasons for delaying medical service. The consolidation of medical and hospital bills, with the arrangement of definite terms at the time the service is rendered, should result, with the cooperation of the employer and all concerned, in an increased ratio of collections.

10. Physicians send their bills computed at their usual fees for these patients to bureau headquarters, giving certain details of their charges. The physician does not make collection of these charges—the central bureau makes arrangements for collections and has the cooperation of the employer. To defray the cost of operating the bureau, 10 per cent of sums actually collected is retained by the bureau.

THE ADVISORY GROUP

The bureau is under the direct financial and executive control of the board of trustees of the Wayne County Medical Society. An advisory committee, called the Board of Arbitration, aids the board of trustees with recommendations regarding details of operation, handles disputes, and assists the smooth performance of the bureau. Representatives of the various cooperating professional groups are seated on the Board of Arbitration. The bureau is under the coordinating supervision of the executive secretary of the Wayne County Medical Society.

The Wayne County Medical Society Bureau has grown so rapidly that statistics are obsolete almost before they can be published. The plan has received a hearty welcome from every industrialist to whom it has been explained. The total number of employees of the industries now cooperating with the bureau is approximately 229,980. Industrial concerns have various methods of cooperating with the central bureau (such as by pay-roll deductions and employee loans), but they all agree on one point: they are willing to extend every courtesy to the medical organizations if they can cooperate with one center, but it is impossible for them to deal with over 7,000 individual units who serve the public. Their reason is obvious. One central bureau in the medical society would entail only one deduction from pay-rolls per month to cover the medical welfare of their employees; the bookkeeping is thus greatly simplified. If, however, the industrial concern attempted similar cooperation with thousands of individual physicians, dentists and hospitals, it would require a tremendous amount of detailed and expensive bookkeeping. Centralized bookkeeping and collections are vital in obtaining the cooperation of large employers of labor. They hesitate to promise cooperation except with one center.

CHARITY CHISELERS DISCOURAGED

During recent months, welfare agencies in Detroit (like other large centers) have been flooded with requests for free medical care. When approached by the Wayne County Medical Society and asked to cooperate with its bureau, the officials in charge were glad to conserve public funds by referring all patients able to pay something for medical service to the bureau. These patients are always returned to their family practitioner with a plan of deferred payments. The majority of these patients sought charity because they did not have sufficient cash in reserve to meet the full fees incident to a medical emergency. Their prime need was credit—not free medical care. Already many families have been spared the humiliation of charity by the alert cooperation of the investigators in Detroit's public charity institutions. The bureau will continue its contact with free and part pay dispensaries and clinics with a view to returning as many cases as possible to the private practitioner of medicine in order to strengthen the traditional physician-patient relationship.

A GOING CONCERN

Since Feb. 16, 1934, the bureau has been of service to 937 patients (as of Aug. 18, 1934) and has not refused service to any deserving applicant. In every case service was rendered immediately without red tape. The universal gratitude of patients has been encouraging.

Patients who erroneously thought they could not pay for medical service have contributed to the bureau in small weekly instalments of one, two and three dollars (occasionally a little more) the surprising total of $13,140.13 (as of Aug. 18, 1934). The rapid acceleration of total payments as the number of cases increases is illustrated by the fact that while $3,563.82 was collected during the month of July, a total of $3,417.81 was paid in during the first sixteen working days of August.

THE BUREAU SOLVES PROBLEM CASES

The bureau has not advertised its services, because a large volume of cases could not be handled by the present small administrative staff of the bureau. Experimental publicity has been released to the employees of one large manufacturing concern by a write-up in the employees' monthly magazine. The following quotation from this publication illustrates the manner in which the bureau intends to route sick employees or members of their families to their private practitioner, and if financial problems cannot be solved by him, to work out a plan for the benefit of the patient and the doctor:

WHAT TO DO WHEN SICK

In case of illness in your family, call your family doctor. Let him examine the patient and make his diagnosis. If you are unable to pay cash for the necessary treatment, ask your doctor to refer you for help to the Wayne County Medical Society Service Bureau, Wayne County Medical Society Building, Detroit. The Bureau will work out an easy payment plan so you can get rid of that pain or sickness today. There are no dues, service charges or interest for you to pay.

The bureau believes that this type of publicity will increase the number of patients seeking medical care in physicians' offices and will lessen the dispensary load and taxpayers' burden.

During the last few years the medical profession has been subjected to unjust and severe criticism, and many opportunists have taken advantage of the smoke screen to formulate schemes (usually socialistic) having "bigger and better" medical service to the middle class patient as excuse for their meddling. Through its bureau, the Wayne County Medical Society of Detroit is seeking to demonstrate that medical care can be supplied those who need it—not through insurance, not through government or political agencies, but through the sane and unselfish work of the individual doctor of medicine coordinated by his county medical society.

Association News

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central daylight saving time. The next three broadcasts will be as follows:

Sept. 13. Common Eye Troubles, William C. Benedict, M.D., representing the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago.
Sept. 20. Infantile Paralysis, W. W. Bauer, M.D.
Sept. 27. Swimming Pool Sanitation, J. F. Hammond, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Typhoid in Decatur.—Typhoid was reported in Decatur, recently, when fourteen people who drank water from a contaminated well developed the disease. The well water was used for drinking purposes after the water company had discontinued its service for nonpayment of bills, it was stated. A survey was made by the state board of health and the well was closed. Service was resumed by the water company.

Mosquito Eradication.—Fourteen counties in the state had announced their agreement to participate in a campaign to eradicate mosquitoes, newspapers reported, August 7. The campaign was to be undertaken as a precautionary measure against dengue fever, since several cases had been reported in other southern states, 800 cases of the disease having been reported in Miami, Fla., alone.

Dr. Baker Appointed to National Board.—Dr. James N. Baker, Montgomery, state health officer, has been appointed a member of the National Board of Medical Examiners for a term of six years, to succeed Dr. Waller S. Leathers, dean of Vanderbilt University School of Medicine. Dr. Baker is a graduate of the University of Virginia Department of Medicine and has been state health officer since 1930; prior to his appointment he had been a practitioner in Montgomery for thirty years.

COLORADO

State Medical Meeting at Colorado Springs, September 19-22.—The sixty-fourth annual session of the Colorado State Medical Society will be held at Colorado Springs, September 19-22, with headquarters at the Antlers Hotel. Out-of-state speakers will include, according to the preliminary program, Drs. Rudolph H. Kampmeier, New Orleans, "Aneurysm of the Thoracic Aorta"; Joseph Brennemann, Chicago, "Acute Abdominal Conditions in Children," and Walter L. Bierring, Des Moines, Iowa, President, American Medical Association, "Heart Disease and the General Practitioner." Included among other speakers are the following physicians:

William H. Mast, Gunnison, Acute Disorders Simulating Surgical Conditions of the Abdomen.
Herman I. Laff, Denver, Diagnosis of Mastoiditis.
Clinton E. Harris, Woodmen, The Common Cold.
Charles W. Streamer, Pueblo, Traumatic Surgery in Automobile Accidents.
Hermann B. Stein, Denver, The Apple Diet in Treating Diarrheas of Infants and Children.
Herman C. Graves Jr., Canon City, Early Diagnosis of Peripheral Circulatory Diseases.
Sanford M. Withers, Denver, Cancer of the Breast.
Edward N. Chapman, Colorado Springs, A Major Public Health Problem in Colorado.
Harry Gauss, Denver, Changing Concepts in Nephritis.
Edward Jackson, Denver, The Dangers of Proprietary Drugs.
Ralph W. Danielson, Denver, Rôle of the Ophthalmoscope in General Practice.
George B. Kent, Denver, Surgical Management of Malignant Lesions of the Colon and Rectum.

A fracture seminar will be held Thursday morning, with the following participants: Drs. Hamilton I. Barnard and Atha Thomas, both of Denver; Fred H. Hartshorn, Fort Collins; Harold R. McKeen and Robert G. Packard, Denver. A symposium on obstetrics will be conducted Friday afternoon by Drs. Gerrit Heusinkveld, John R. Evans, Gunnar Jelstrup, Lyman W. Mason, Edward L. Harvey, Harold J. Von Detten and James B. Walton, all of Denver. Saturday afternoon will be devoted to a seminar on the endocrines by Drs. Constantine F. Kemper, George M. Z. Williams and Thaddeus P. Sears, Hugh Kingery, Ph.D., and Bernard B. Longwell, Ph.D., all of Denver. Clinical sessions are being added to the program of the state society this year. The annual golf tournament will be held Friday afternoon, September 21.

CONNECTICUT

Dr. Maher Honored.—The infirmary building of the new Seaside Sanatorium for children at Waterford has been named in honor of Dr. Stephen J. Maher, for twenty years chairman of the state tuberculosis commission. The new sanatorium, erected at a cost of $500,000, will care for patients with bone and glandular tuberculosis and replace the old building at Crescent Beach. In 1932 Dr. Maher was awarded the Laetare Medal by Notre Dame University, South Bend, Ind.

GEORGIA

Extension Course.—Members of the faculty of the University of Georgia School of Medicine, Augusta, presented a series of lectures in Sandersville, August 6-10. The course was one of a series being sponsored by Emory University and University of Georgia under the supervision of the state board of health:

August 6: Dr. Virgil P. W. Sydenstricker, Treatment of the Anemias; Dr. George A. Traylor, Compression Fractures of the Vertebrae.
August 7: Dr. George L. Kelly, Functional Dysmenorrhea, the Aschheim-Zondek Test; Dr. Ferdinand C. Lee, Common Endocrine Disorders.
August 8: Dr. John W. Brittingham, Syphilis of the Central Nervous System; Dr. Guy T. Bernard, Carcinoma of the Uterus.
August 9: Dr. Ralph H. Chaney, Surgical Treatment of Pulmonary Tuberculosis; Dr. Robert C. McGahee, Congenital Syphilis.
August 10: Dr. Henry M. Michel, Diseases of the Hip Joint; Dr. Thomas B. Phinizy, Preventive Pediatrics.

Society News.—Dr. Charles C. Harrold, Macon, was elected president of the Chattahoochee Valley Medical and Surgical Association at its annual meeting in Albany, July 12, succeeding Dr. Agnew H. Hilsman, Albany; Dr. Marion T. Davidson, Birmingham, Ala., and Dr. Mathew Jay Flipse, Miami, were elected vice presidents, and Dr. William J. Love, Opelika, Ala., secretary. The association will hold its 1935 meeting in Albany. ——Dr. James E. Paullin, Atlanta, addressed the Lowndes County Medical Association, recently, on arthritis.

ILLINOIS

Richland County Leads in Maternal Mortality.—Figures obtained in a study of maternal mortality in Illinois during the last five years by the state department of health reveal that Richland County leads in maternal deaths with a rate of 16.1 per thousand births. This rate is three times as high as that for the state as a whole (5.6). Twenty-four maternal deaths occurred in the county among 1,488 births. Three counties, Bond, Menard and Putnam, reported no maternal deaths in connection with 2,146 births during the five years. Counties reporting rates of 10 or more during this period include Lee, 13.8; Pulaski, 13.6; Alexander, 13.5; Morgan, 11.8; Effingham, 10.5; Scott, 10.4; Perry, 10.1; Saline, 10.1, and Logan, 10.

Chicago

Professorship of Nursing Education Created.—With the appointment of Miss Nellie X. Hawkinson as professor of nursing education, a program of nursing education has been begun at the University of Chicago. The committee of nursing education, appointed by President Hutchins last winter after a tentative plan for the organization of the courses had been approved, will be responsible for the formulation and adoption of the sequences of studies leading to degrees. Sequences for teachers of nursing, supervisors and administrative officers in schools of nursing are being planned as the first step. The degree will be cleared for the present through the division of biological sciences, although the courses included will be offered in education, home economics, psychology and other departments as well as in the science departments.

IOWA

Personal.—Mr. C. W. Kammeier was recently appointed executive secretary of the Iowa Tuberculosis Association, succeeding Mr. T. J. Edmonds, resigned.——Dr. Clyde A. Boice, Washington, was reelected president of the state board of health at its annual meeting in Des Moines, July 10.

Survey of Births.—A report has recently been published on a study covering 129,539 births in Iowa, with special reference to the method of delivery and the stillbirth rate, for the years 1930, 1931 and 1932. There were 3,820 stillbirths among this total, an incidence of 2.94 per cent. Iowa is essentially a rural state and has only twenty-one cities with more than 10,000 population. Births in these urban centers numbered 43,444, while in the rural communities 86,095 births were recorded. For the state as a whole there were 41,418 births in hospitals, giving a percentage of 32. In urban communities 61.9 per cent of all births occurred in hospitals, while in the rural districts the percentage was only 16.9. Of the 129,539 births, the type of delivery was specified in 91,738 cases; in 10,818 operations were performed, a gross operative incidence of 11.8 per cent. Of the various types of deliveries, all varieties of forceps deliveries totaled 6,474; version and extraction, 1,236; cesarean section, 955; breech extraction, 711; craniotomy, 4, while types not specified totaled 1,438. The operative incidence among primiparas (23.1 per cent) was almost four times as great as in multiparas (6.5). The stillbirth rate among primiparas was appreciably higher (3 per cent) than among multiparas (2.4 per cent). The incidence of operative delivery among 89,270 live births was 11.2 per cent, while among 2,468 stillbirths it was 35.1 per cent. In the 37,808 births in which the type of delivery was not stated, the stillbirths numbered 1,352, a rate of 3.6 per cent, while among the 91,738 with delivery data available for analysis there were 2,468 stillbirths, an incidence of 2.7 per cent.

LOUISIANA

Society News.—Dr. Basil C. MacLean discussed group hospitalization before the Orleans Parish Medical Society in New Orleans, July 9.——Speakers before the Second District Medical Society at Destrehan, recently, included Drs. Urban Maes and James D. Rives, New Orleans, on "Early Diagnosis of Carcinoma of the Stomach," and "Extra-Gastric Dyspepsias," respectively.——The Vernon Parish Medical Society was revived at a meeting, June 30, at which Drs. James F. Smith, Leesville, was elected president; William T. Franklin, Anacoco, vice president, and Daniel O. Willis, Leesville, secretary.

MARYLAND

Epidemic of Influenza.—Influenza is spreading over western Maryland, according to the New York *Times*, August 21, at which time the outbreak involved nearly 1,000 cases. Cases have been reported at Hancock, Hagerstown, Rockville, Maugansville and Berkeley Springs, W. Va. The attack is sudden, lasting about five days, and is accompanied with chills, pains in the chest and abdomen, and general weakness.

Diphtheria Prevention Campaign.—The fourth annual diphtheria prevention campaign will begin in Baltimore, October 1, under the supervision of Dr. Adolph Weinzirl, director, department of communicable diseases. Between now and the opening of the campaign, parents and guardians of young children are advised to secure from their family physicians the toxoid preventive treatment for their children, as soon as possible after they reach the age of 6 months.

MICHIGAN

Society News.—The Berrien-Cass County Medical Association met jointly with the Berrien County Bar Association at Berrien Hills Country Club, July 18; a memorial service for the late Dr. Charles N. Sowers, Benton Harbor, was a feature of the program.——The Oakland County Medical Society was entertained by the Genesee County Medical Society in Flint, June 20; in the morning, clinics and demonstrations were held at the Hurley Hospital; the afternoon was spent at the Flint Country Club.

MISSISSIPPI

Society News.—The Central Medical Society devoted its meeting, July 3, to case reports; participants in the program were Drs. John K. Bullock, Roland W. Hall, Walter F. Henderson, Isaac C. Huggins and Julius Crisler, Jackson.——A symposium on the toxemias of pregnancy constituted the program of the Issaquena-Sharkey-Warren Counties Medical Society at Vicksburg, August 14.——Dr. Edward C. Mitchell, Memphis, Tenn., among others, addressed the Northeast Mississippi Thirteen Counties Medical Society at Greenwood Springs, recently; other speakers included Drs. Hyder F. Brewster, New Orleans, on "Gonococcal Conjunctivitis"; Stanley A. Hill, Corinth, "Useful Methods of Treating Fracture of the Femur," and Henry J. Kellum, Tupelo, on "Glaucoma." The North Mississippi Medical Society was addressed at Warren Lake near Waterford, June 27, by Drs. J. H. Eugene Rosamond, Memphis, on "Diarrheas of Infancy and Childhood"; Dudley R. Moore, Byhalia, "Uterine Displacement," and Raphael E. Semmes, Memphis, "Management of Head Injuries."——Dr. Frank C. Shute Jr., New Orleans, among others, discussed "Perforated Appendix" before the South Mississippi Medical Society in Hattiesburg, June 14.——Speakers before the medical society of Lincoln, Copiah, Lawrence and Walthall counties recently included Drs. William L. Little, Wesson, on scarlet fever, and Thomas F. Conn, Monticello, malaria and its treatment.

MISSOURI

Personal.—Dr. James H. Ready has been named head of the medical department of the General American Life Insurance Company, St. Louis, succeeding Dr. James E. Bee, resigned. Dr. Ready will be replaced in his position as assistant medical director by Dr. Lloyd C. Miller, who has been chief medical examiner.

Society News.—At a meeting of the Cass County Medical Society in Archie, June 14, Drs. Robert M. Miller, Belton, read a paper on "Angina Pectoris" and Vincent T. Williams and John R. Callan, Kansas City, discussed "Pathology of Angina Pectoris and Other Cardiac Lesions."——Dr. Jesse E. Douglass, Webb City, addressed the South Central Counties Medical Society at Thayer, June 28, on "Prevention of Tuberculosis."

State Tuberculosis Division Approved.—The creation of a tuberculosis control division in the state department of health has been approved by a committee representing the Missouri Tuberculosis Association, the state department of health, the state eleemosynary board and the Missouri Tuberculosis Association. The plan would provide for a full time director in the health department and trained workers to handle the rehabilitation and follow-up work on every case discharged from the various state sanatoriums, according to the state medical journal.

NEW MEXICO

Study of Accidental Deaths.—A study of accidental deaths in New Mexico in the last five years shows that deaths from automobile and motorcycle accidents led all other causes by a wide margin, with 542 fatalities. Excessive heat caused five in five years. Other causes were falls and crushing, 190; burns, 172; firearms, 120; drowning, 117; poisons, 100; mines and quarries, 92; railroad, 78; lightning and electric current, 42; excessive cold, 40; air transporation, 24. In 1933, 102 persons met death in automobile or motorcycle accidents.

NEW YORK

Death from Beriberi.—The first death from beriberi in the state in fifteen years occurred recently in Buffalo, the state department of health reports. The previous one occurred in New York City in 1919. There have been four deaths from the disease in northern New York in the past twenty years.

A Boasting Young Russian Jailed.—A young man who was attempting to practice medicine without medical education or license was placed in the Sullivan County jail in August for thirty days on one count and ordered to pay a fine of $500 on another, with a suspended jail sentence of a year. In conversation with the town constable "Dr." Morris Levine, a guest at the Pine Grove Hotel, Monticello, boasted of his extensive practice to such a degree that the constable became suspicious, in view of the youth of the "doctor." The constable then consulted an official of the Sullivan County Medical Society, who found that Levine had given medical treatments to several guests of the hotel. He was arrested on the complaint of one of these, pleaded not guilty before a magistrate and was about to be released on $500 bail when he was again arrested on a warrant sworn out by another guest. Bail was then set at $2,000, which Levine was unable to raise. An inspector from the state board of medical examiners assisted with the case. Levine said he was 28 years old, a native of Russia and had lived in the United States since 1928. He said that he had lived for a time in Springfield, Mass., and admitted that he had never studied medicine.

New York City

Death from Rabies.—A 7 year old boy died of rabies, August 7, after having been bitten by a rabid dog, July 11. The boy received a lacerated wound on the right eyelid, cheek and chin. Antirabic treatment was started, July 12, and fifteen injections had been given when on August 5 the child developed paralysis, convulsions and difficulty in swallowing. Postmortem examination revealed Negri bodies in the brain.

Friday Afternoon Lectures.—The fall series of Friday Afternoon Lectures sponsored by the Medical Society of the County of Kings at its Brooklyn headquarters will begin, September 28, with the following speakers for the first month:

Dr. Edwin H. Fiske, Electrosurgery.
Dr. Mervin C. Myerson, subject to be announced.
Dr. Bernard Benjamin, Anemia of Infancy and Childhood.
Dr. Thomas M. Brennan, Intestinal Obstruction.

NORTH DAKOTA

Society News.—Dr. William R. Winn, Fargo, was elected president of the North Dakota Academy of Ophthalmology and Otolaryngology at its annual meeting in Fargo, recently. Drs. Charles N. Spratt, Minneapolis, and George M. Constans, Bismarck, were the speakers.

OHIO

Epidemic Encephalitis at Fremont.—Eight persons died of epidemic encephalitis at Fremont during the two weeks preceding August 28, according to the Chicago *Tribune*. Dr. Francis M. Teeple, county health officer, reported that the epidemic appeared to be waning at that time.

Program of Hospital Obstetric Society.—A plan of action for the Hospital Obstetric Society of Ohio, formation of which was announced in THE JOURNAL, May 5, page 1506, was recently outlined by the president, Dr. Arthur J. Skeel, Cleveland, and adopted by the society. It is proposed to sponsor the adoption of a continuous audit system of hospital obstetric mortality and morbidity, to develop a code of rules and regulations to govern hospital obstetrics, to further a uniform system of staff organization and control including both the regular and the courtesy or affiliate staffs, to support legislation that will compel conformity with the principles of such a code by institutions or persons unwilling to comply, to develop facilities for maternity cases throughout the state, and to encourage as nearly complete hospitalization of maternity cases as conditions in individual communities will permit.

PENNSYLVANIA

Personal.—Dr. Henry F. Ulrich has been appointed coroner of Snyder County to succeed the late Dr. A. Jerome Hermann, Middleburg.——Drs. Edward Lyon Jr. and James Stanley Smith were recently awarded the 1934 prize offered by the Williamsport Hospital staff to the interns submitting the best papers on subjects of interest to the medical profession.——Dr. Walter F. Donaldson, Pittsburgh, secretary of the Medical Society of Pennsylvania, has been made chairman of the health committee of the Pittsburgh Chamber of Commerce.

Society News.—Drs. Joseph H. Barach, Scott L. Koch and Laurence E. VanKirk, D.D.S., Pittsburgh, addressed a meeting of physicians from several counties under the auspices of the Clearfield Medical Society, Clearfield, recently, on various aspects of cardiovascular renal disease.——At the annual meeting of the western section of the Fifth Councilor District of the Medical Society of the State of Pennsylvania, July 19, at Graeffenberg Inn, Franklin County, speakers were Drs. Donald Guthrie, Sayre, president of the state society, on "Cardinal Symptoms of Duodenal Ulcer"; John O. Bower, Philadelphia, "Reducing the Mortality of Appendicitis," and Howard K. Petry, Harrisburg, "A Challenge on the Early Stages of Mental Disorders."

Philadelphia

Survey of Poliomyelitis and Encephalitis.—Dr. J. Norman Henry, director of health of Philadelphia, has appointed a special committee of physicians to study poliomyelitis and encephalitis, as follows: Drs. Courtland Y. White, Abraham M. Ornsteen, George E. Johnson, Pascal F. Lucchesi, Randle C. Rosenberger, Daniel J. McCarthy, DeForest P. Willard, Frank W. Konzelmann, Edward A. Strecker and Howard C. Carpenter. The formation of the committee had no bearing on the incidence of the diseases in the community, it was said, but particular attention will be paid to methods of controlling any epidemic that may arise. The object is to study all questions relating to the epidemiology and methods of conveyance of the diseases, together with questions of susceptibility and contagion.

Municipal Swimming Pools Contaminated.—An investigation conducted by the Philadelphia *Inquirer* early in August revealed that nearly all the swimming pools operated by the city were grossly contaminated because of laxness in supervision. It was charged that adequate precautions were not taken in the matter of requiring swimmers to bathe before entering the pools and that sufficient amounts of chlorine to counteract the pollution were not being supplied. Following the exposure of these conditions by the newspaper, the state department of health made an inspection and reported that measures had been taken to eliminate the high bacterial count. The department recommended that before another summer season more adequate apparatus for chlorination be installed and that more frequent tests for chlorine content of the water be made.

TEXAS

Society News.—A symposium on pancreatic disease will be presented before the Dallas County Medical Society, September 13, by Drs. George D. Mahon Jr., Henry M. Winans and John L. Goforth.——Drs. Richard B. Grant Jr. and Roland M. Searcy, Bryan, addressed the Brazos-Robertson Counties Medical Society, Hearne, July 10, on diarrheas and fractures of the forearm, respectively.——Dr. Winfred Wilson, Memphis, discussed hospital insurance at a meeting of the Childress-Collingsworth-Donley-Hall Counties Medical Society, at Childress, June 15.——Drs. Witten B. Russ and William E. Nesbit, San Antonio, among others, addressed the Gonzales County Medical Society, Gonzales, June 30, on "Danger of Deferring Operation for Cancer of the Stomach" and "Cardiac Conditions Simulating Acute Indigestion," respectively.

GENERAL

Auxiliary Board Meeting.—The regular fall meeting of the board of directors of the Woman's Auxiliary to the American Medical Association will be held in Chicago at the Pearson Hotel, September 22. Mrs. Robert W. Tomlinson, Wilmington, Del., is president of the Auxiliary.

James Cooper Not an Authorized Solicitor.—James Cooper, who it is reported, has been obtaining money for subscriptions to various publications of the American Medical Association is not an authorized representative of the Association. Cooper has recently been reported in Indiana. He is described as about 22 years of age; 5 feet 10 inches in height, with a fair complexion.

Changes in Status of Licensure.—The California State Board of Medical Examiners reports that at a meeting in San Francisco, July 9-12, the following action was taken:

Dr. Harvey P. Charles, Berkeley, license revoked on records of his conviction of battery following alleged assault on two women who called at his office.
Dr. Leman Dow Cruice, San Diego, license revoked following his conviction of narcotic violation; now in McNeil Island Penitentiary.
Dr. Oscar W. De Vaughn, Oakland, license revoked on record of conviction of criminal abortion and also record of subornation of perjury; sentenced to San Quentin.
Dr. Manuel M. Doria Jr., San Diego, license revoked, July 12, on a charge of habitual intemperance.

The State Medical Board of the Arkansas Medical Society announces the following action:

Dr. Junius Ruth, Rison, license restored, January 10.
Dr. Thomas B. Sylar, Holly Grove, license restored, May 16.

Program on Medicinal Chemistry.—At the semiannual meeting of the American Chemical Society in Cleveland, September 10-14, the division of medicinal chemistry will hear the following speakers, among others:

Dr. Emil Bogen and Russell N. Loomis, Olive View, Calif., Comparative Carcinogenic Effects of Common Agents.
Conrad A. Elvehjem, Ph.D., Madison Wis., Effect of Iron and Copper Therapy on the Hemoglobin Content of the Blood of Infants.
Charles G. MacArthur, Buffalo, Chemical Analysis of the Central Nervous System of an Idiot.
Courtland L. Butler Jr., Ph.D.; Alice G. Renfrew, Ph.D., and Leonard H. Cretcher, Ph.D., Pittsburgh, Cinchona Alkaloids in Pneumonia.
Dr. Andrew Richard Bliss Jr., Memphis, Tenn., Absorption of Certain Drugs Through the Skin.
Paul Nicholas Leech, Ph.D., secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago, Some Simple Short Cuts in Analysis of Unknown Medicinals.
Henry V. Farr, St. Louis, Significance of Some Impurities in Anesthetic Ether.
Clemmy O. Miller, Ph.D., Chicago, Analytic Method for Determining Scurvy Based on Cevitamic Acid (Ascorbic Acid).
David Klein, Ph.D., Chicago, Inaccuracies of Official Enzyme Assays.

Diabetes in 1933.—The average death rate for diabetes in fifty cities of the United States in 1933 was 26 per hundred thousand of population, a slight reduction from the 1932 rate, which was 26.3. A compilation of deaths in 175 cities also shows a reduction from 24.3 to 23.8. These slight improvements may possibly foreshadow further decrease in the near future, in the opinion of Frederick L. Hoffman, LL.D., consulting statistician of the Prudential Life Insurance Company. The highest rates in 1933 occurred in Utica, N. Y., with 60.5; Lancaster, Pa., 49.9; Williamsport, Pa., 49.2; Paterson, N. J., 48.8; Fall River, Mass., 45.8. The five cities with the lowest rates were Somerville, Mass., 2.8; Pueblo, Colo., 3.8; Fort Worth, Texas, 5.5; Newton, Mass., 5.6, and Gary, Ind., 6.1.

The five largest cities in the United States had the following rates: New York, 29.2; Chicago, 27.3; Philadelphia, 26.9; Los Angeles, 21.4, and Detroit, 16.9. A study of the rates according to sex in New York City showed that in 1932 the rate for men was 19.8 and for women, 38.9. These rates had increased since 1920 from 14.5 and 23.3, respectively. It is believed that the annual loss of life from diabetes in continental United States is about 30,000 deaths at present.

American Academy of Ophthalmology and Otolaryngology.—The thirty-ninth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago at the Sherman Hotel, September 9-14. Professor Hans Lauber, Warsaw, Poland, will be the guest of honor and will deliver an address at the opening general session on "Diagnostic and Prognostic Importance of Ophthalmoscopy in Red-Free Light, with Special Reference to the Affections of the Optic Nerve and the Chiasma." Symposiums will be presented on the tonsils, etiology of exophthalmos and conservative treatment of the nose, throat and ear. There will also be courses of instruction on histopathology, fundus clinics at Cook County Hospital and conferences on many special topics each morning. Among other speakers will be:

Dr. Charles H. Watkins, Rochester, Minn., Relation of the Use of Barbiturates to Agranulocytic Angina.
Dr. Marie F. Weymann, Los Angeles, Use of Sclerosing Solutions in Ophthalmic Therapeutics.
Dr. Harry M. Weed, Buffalo, Divergence Paralysis Due to Head Injury.
Dr. Arthur C. Jones, Boise, Idaho, Oil Cyst of the Orbit with Carcinomatosis.
Drs. Max L. Folk and Samuel Soskin, Chicago, The Fundus Oculi in Diabetes Mellitus.

A golf tournament will be held Wednesday afternoon, September 12, at Olympia Fields Country Club. The president, Dr. John M. Wheeler, New York, and Mrs. Wheeler will hold a reception Sunday afternoon, September 9. At a banquet and dinner dance Tuesday evening guests of honor will be Professor Lauber, Dr. Carl Koller, New York, in recognition of the fiftieth anniversary of the discovery of cocaine as a local anesthetic, and Dr. Wells P. Eagleton, Newark, N. J., president-elect of the academy. Friday afternoon will be devoted to a visit to the Illinois Eye and Ear Infirmary.

Government Services

Civil Works Health Projects

A summary of the work accomplished on health projects sponsored by the U. S. Public Health Service as a part of the Civil Works Administration during the winter 1933-1934 appeared in *Public Health Reports,* August 17. The four projects recommended were a malaria control drainage program in the fourteen states in which malaria has been most prevalent, construction of sanitary facilities in small towns and unsewered outskirts of large cities, surveys to determine the extent of endemic typhus fever in rodents in important seaports, and the sealing of abandoned coal mines to reduce the acid wastes being discharged into streams used for water supplies. Health officers of the states were made agents of the federal health service for technical supervision. Amounts set aside for labor totaled approximately $4,500,000 for malaria control, $5,000,000 for community sanitation, $1,000,000 for typhus fever surveys and $1,500,000 for sealing coal mines. At the height of employment, 28,000 laborers were at work on federal projects and in addition 53,000 were reported to be working on similar projects carried on by state and local authorities. Community sanitation projects were carried out in twenty-four states, employing 35,000 persons at the peak. Incomplete reports showed that more than 200,000 sanitary privies were constructed. In some communities in which increasing prevalence of typhus had alarmed the citizens, sources of infection were located and control measures instituted. The mine sealing operations were curtailed before they were completed, although about 7,000 openings of various kinds had been closed in states where it was possible to begin work immediately, Alabama, Pennsylvania and West Virginia. In other places surveys were completed, furnishing records to state departments of health covering location of mines discharging acid water. Other results considered worth while were the demonstration of the practicability of sealing, development of methods of air sealing under varying conditions, training of mining engineers and others in the methods, and creating interest of mine owners in the problem. The largest number employed on this project was 2,927 men and 24 women.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 11, 1934.

The Aryan and Nordic Myths

In introducing a discussion on man's place in nature at the International Anthropological Congress in London the president, Sir Grafton Elliot Smith, F.R.S., the anatomist, said that at present it was of the greatest importance that anthropologists should reach some consensus on such problems as might be held to justify or excuse political action. If their discussions did nothing more, it would be a definite gain if they could impress on the world some respect for anthropologic truth and the generally admitted facts of race and culture. There was still some diversity of opinion as to the place where civilization first originated, although he himself had no doubt. (He believes that it originated in Egypt.) There was now evidence to show that whether it happened in Egypt, India or elsewhere, in any case it was the work of members of the race which, as Sergi taught, spread round the shores of the whole Mediterranean. There was no adequate reason for regarding this as in any sense due to any innate qualities or initiative or skill on the part of the members of that race, but rather to the historical circumstances that impelled the people living on the banks of the Nile to embark on those agricultural pursuits which led inevitably to the building up of civilization.

It was important to emphasize that fact at a time when distinctive qualities were being attributed to the Nordic race and the so-called Aryan people. Although the introduction of the term "Aryan people" must be attributed to Max Müller, it was important to note that in the face of intense criticism he was compelled to admit that "an ethnologist who speaks of Aryan race, Aryan blood, Aryan eyes and hair, is as great a sinner as a linguist who speaks of a dolicocephalic dictionary or a brachycephalic grammar." Those who insisted on the moral and intellectual qualities of the so-called Aryans and talked about primitive Aryan culture should be reminded that it was more than doubtful whether the Aryans did invent a primitive culture in any other way than in borrowing it from Babylon. Prof. A. J. Carnoy had demonstrated that the so-called primitive Aryan culture was derived from Babylonia. It was a fallacy to attribute cultural achievements and inherent mental aptitudes to different races. When one thought of the trenchant exposure of the Aryan fallacy by Huxley in 1890, it became an increasing matter of surprise that the facts of anthropology should be so flagrantly misused at the present time by using the word Aryan in the sense of non-Jewish.

A learned discussion by anthropologists of the term Aryan has followed in the *Times.* Sir Arthur Keith is alone in thinking that Max Müller may after all have been right. The term was originally and still is correctly applied to a group of languages comprising nearly all the European languages and Sanskrit, Zend and Persian. There must have been an original mother tongue from which these languages are descended. Keith argues that there must have been a people who spoke it. But this suppositious race is so remote that its physical characters cannot be described. A. C. Haddon, J. B. S. Haldane and C. G. Seligman, in reply to Keith, point out that of the three great divisions of the European races—Nordic, Alpine and Mediterranean—no one can say which is descended from the original Aryan-speaking stock and which acquired an Aryan tongue from it. However, it is generally admitted that the original Mediterranean race, of which the ancient Egyptians are an example, was non-Aryan. These professors therefore hold that "no specific racial connotation can be attached correctly to the philological term Aryan. The physical char-

acters of the three European races are so diverse that they can hardly have had a common origin less remote than the common stock of the white race, often called Caucasian, which definitely includes Jews and Arabs.

Report on Cancer Research

At the annual meeting of the British Empire Cancer Campaign the report, which was presented and approved, stated that the main attack in the battle against cancer was now being directed against the cancer cell itself. Knowledge was increasing about the cell and about the chemical reactions that occur within it in the body. Such knowledge justified a sober optimism, for the enigma of the cancer cell might be looked on as the last defense of the disease. Mr. Cecil Rowntree, surgeon to the Cancer Hospital, said that the report showed that the purposes for which the campaign were founded were being fulfilled in all directions. One purpose was the coordination of research and research organizations not only within Great Britain but throughout the empire. The recent steps of setting up a panel of international correspondents, whereby they had an accredited representative in each of the great scientific capitals, added to the accuracy and promptness of their foreign information. The investigations carried out at the Cancer Hospital and at the Middlesex Hospital suggested the possibility that the ultimate cause of cancer might be something of a chemical nature produced by disordered functions within the body itself. An admirable attempt to develop a new line of attack on cancer of the esophagus by intensive roentgen therapy had been made at St. Bartholomew's Hospital. In his Garton prize essay Dr. Colwell described the action of radiations on normal and malignant cells. All these provided encouraging indications of new and profitable avenues of research. In the direction of prevention they could point to great increase of knowledge of the nature of precancerous conditions, and in particular to the likelihood of a great diminution of the incidence of industrial cancer as the result of investigations into the carcinogenic agents in lubricating oils and other industrial materials.

ADVANCES IN THE RADIUM TREATMENT OF CANCER

On the curative side they could point to recent advances in radiation treatment. Partly in consequence of the campaign a silent revolution had been effected, for it seemed that the recent changes witnessed in the radium practice of the whole cancer world were no mere therapeutic experiments of passing interest but evidence of fundamental change in the picture of cancer treatment. The radium bomb, so called, was coming to be regarded as a necessity of all well equipped cancer centers. Fortunately the radium position had been materially eased by the discovery of radium deposits in Canada. It was not pretended that radium was a cure for cancer in the ordinary acceptance of the term, but in certain cases it gave results not hitherto obtained by any other method. One had only to point to cancer of the lip, tongue and uterus to realize the change in current practice. In these situations radium had in part or in whole replaced operative surgery. There was no hope that some sudden flash of genius would solve the cancer problem in a day. Every indication seemed to point to the necessity for laboratories and concentrated effort by skilled teams of workers, who, by pooling their experience and repeating and correcting one another's observations, would ultimately arrive at the truth.

Climate and Health

As Bournemouth is a famous health resort, it was appropriate that the president, Dr. S. Watson Smith, who is a local physician, should have taken "Climate and Health" as the subject for his address. The importance of sunlight to life, he said, could not be overestimated, but it was necessary to impress on the community that our greatest natural friend the sun could be an equally important foe. Moderation was essential. Not only did excessive exposure to light rays entail fatigue and exhaustion, but it produced degeneration of the skin, such as may be seen in sailors. The external ears, lower half of the face and backs of the hands showed atrophy and pigmentation, on which warty growths appeared and later might assume a malignant state. But, properly used, the sun was of inestimable value. It had been proved that daylight and industrial efficiency were directly proportional.

British Equipment for British Hospitals

In England, once the home of free trade, economic nationalism is now the vogue. That health should be sought in British health resorts and hospital equipment and surgical instruments bought from British makers is now regarded as only right and patriotic. Lord Derby opened the medical section of British Industries House, a building that has recently been converted into a permanent exhibition center of British Empire merchandise, for the convenience of wholesale buyers at home and from oversea. The medical section will be a national buying center for hospitals and the medical profession. On the ground floor has been constructed a model hospital, comprising a ward of twelve beds, two operating theaters and accessory rooms, all designed and furnished on the most modern lines. At one end of the ward is a semicircular sun balcony for convalescents. The larger operating theater is equipped with all the appliances needed for major operations. A physician and technical experts are permanently in attendance to explain and advise. The planning of the section has been supervised by a medical advisory council, of which the chairman is Dr. Cox, formerly medical secretary of the British Medical Association. The third floor of British Industries House is devoted to showrooms and showcases displaying British-made medical and surgical instruments. On the lower ground floor will be installed a manufacturer's pattern and sample department in which will be shown commodities that concern the lay side of hospital maintenance. The opening ceremony was attended by Lords Dawson, Horder and Moynihan, Sir Humphry Rolleston and Sir Holburt Waring, president of the Royal College of Surgeons.

PARIS

(From Our Regular Correspondent)

July 18, 1934.

Congress of French-Speaking Physiologists

The Congress of French-Speaking Physiologists, held at Nancy, was presided over by Prof. Henri Frédéricq of Liége. Among many interesting papers, attention is directed to the communication of Professor Lapicque of Paris on the autonomic nervous system and to another by Professor Bacque, who postulates the existence of chemical substances liberated by the excitation of the postganglionic fibers of the autonomic nervous system. As Bacque views the subject, the sensitizers (cocaine) and the paralyzants (ergotamine) exert their action not through a modification of the functioning of the nerve but by changing the physicochemistry of the excitable substance. Professor Roche of Marseilles read a paper on the comparative biochemistry of respiratory pigments, an interesting study on the hemoglobins and hematocyanines. The author emphasized the specificity of these substances, depending on the species, and in the higher animals even on the individuals. This is a new manifestation of a specific characteristic of protein. In the protein portion of the hemoglobin molecule, differences of composition have been found. Mr. Delaunay of Bordeaux and Mr. Polonowski of Lille discussed the metabolism of ammonia in invertebrates and vertebrates, respectively. It appears that ammonia plays an important part as an end product of the

disintegration of nitrogen compounds but represents only a transitory chemical stage before its fixation in other more stable atomic groups. It disappears therefore almost as soon as it is formed, either by transformation into urea or by giving rise to other compounds. Aside from these important monographs there were numerous others devoted to a consideration of various hormones, which subject appears at present to interest investigators most. The congress closed with an excursion to the hot springs resorts of the Vosges region.

Protection of Radios Against Noises

At the request of owners of radio receiving sets, who have become more assertive since the government has imposed a small tax on them, regulations have been promulgated to protect them against disturbing noises caused by electrical apparatus operated in the vicinity. Many complaints have been filed against the medical apparatus of radiologists and electrotherapeutists, and several lawsuits have been instituted by the neighbors of the latter, and in some cases the neighbors have won the suits. On the other hand, there are devices designed to protect radio apparatus against noises, and it is an easy matter for owners of radios to procure them. The minister in charge has endeavored in his decree to consider the rights of the two opposing camps. He has required that apparatus producing heavy electric power shall be provided with protective devices. Only certain types of motors require protection, which is accomplished easily if they are properly grounded. Electrical medical apparatus is, in principle, classed with household electrical apparatus; that is, it is low powered and the installation of insulating devices would entail expense, out of proportion to the advantages derived. This decision satisfies the owners of ordinary medical apparatus. Nevertheless, when a complaint is filed, no judgment can be pronounced until an opinion by a technical committee appointed by the minister has been rendered. It is impossible at present to prevent a diathermy apparatus from emitting radiations.

Lymphogranulomatosis and the Origin of Tabes

Much research has been undertaken to determine the action of the virus of the Nicolas-Favre disease on various organs when injected into the peritoneum of the monkey. It appears to cause a general infection of widely different forms, of which anorectal strictures have furnished recent proof. In 1933 Jonesco-Mihaesti, Tupa, Badenski and Wisner reported observations tending to prove that the virus of this disease, when administered to monkeys by the abdominal route, becomes localized in the neuraxis and induces changes that resemble those of human tabes. Such observations, if confirmed, would modify present conceptions of the etiology of tabes dorsalis. Constantin Levaditi and Jean Levaditi, repeating the experiments of Jonesco-Mihaesti, communicated their results to the Academy of Medicine. The former hypothesis was not corroborated when the experiments were carried out on a plan that excludes the confusion of lesions due to the virus of the Nicolas-Favre disease and changes appearing in monkeys in captivity. For the present then the syphilitic virus remains the sole etiologic agent of tabes, conformable to the first conception of Alfred Fournier.

Deaths

Dr. Achille Louste, who has just died at the age of 58, was an eminent dermatologist. He was chief physician at the Hôpital St. Louis. He left many works on the treatment of syphilis.

Dr. Geoffroy, professor of histology and of pathologic anatomy at the Faculté française de médecine de Beyrouth, has died under distressing conditions. Having occasion to handle in his laboratory the brain of a dog suspected of rabies, he feared he might become inoculated with the virus of rabies, so he inoculated himself with antirabic vaccine. A few days later, paralysis developed—something entirely unusual. In spite of the most excellent care, he succumbed. Professor Geoffroy was formerly a chief physician in the navy. He was a scientist of exceptional merit and an indefatigable investigator.

BERLIN

(From Our Regular Correspondent)

July 16, 1934.

Hereditary Blindness and the Problem of Sterilization

Addressing the Freiburg Medical Society, Prof. W. Wegner pointed out that the problem of eugenics in connection with congenital blindness is a small part of the problem of sterilization for the prevention of hereditary disease. According to a purely legal interpretation of the German law, only total blindness comes within the sterilization law. From the standpoint of the ophthalmologist, however, those who, with greatly reduced vision, are unable to earn their living must be included. During recent decades, the number of blind persons in Germany has steadily decreased. It is thought that, through improved hygienic measures and the endeavors of ophthalmologists, a further decrease of 30, or even 40, per cent is possible. Aside from the war blinded, that would signify a reduction of Germany's blind population to about 22,000. The persons who can trace their blindness to heredity is placed at about 20 to 25 per cent of the total. Thus, by the application of eugenics a further reduction of the blind population is possible. Aniridia, which is a rare disorder, and zonular cataract, are subject to hereditary influences. The number of blind persons in Germany as the result of congenital cataract is estimated at 4,000. In addition, there are many weakminded persons, whose number is unknown. Sterilization is demanded with reference to persons with aniridia or severe types of congenital cataract. The extreme prevalence of mild forms of congenital cataract requires the expert to be exceedingly cautious in his diagnosis of a case. As severe recessive hereditary disorders, mention was made of total color blindness, total albinism, retinitis pigmentosa and hydrophthalmos. The sterilization of persons with these severe hereditary disorders is demanded. In the prophylaxis of hereditary disorders, sterilization of all the offspring of persons with severe recessive hereditary disorders would be desirable, but it does not appear feasible at present. The only grave eye disorder of a recessive hereditary character is Leber's optic atrophy. Since the direct transmission of this disorder by manifest carriers is only remotely possible, the sterilization of such persons, although desirable, cannot be considered imperative.

Since most of the sisters of persons thus affected may transmit the disorder without it being necessary that the husband shall be predisposed, the ophthalmologist should demand the sterilization of the sisters of any person presenting Leber's optic atrophy. Such demands in themselves are justified, but they exceed the limitations of the sterilization law. Degenerative myopia is more important, since, by reason of the complications, it represents a greater handicap socially than the inherited recessive disorder. General applications of the sterilization law are unthinkable even in high-grade myopia, but the marital union of persons with high-grade myopia should be prevented, since experience has shown that nearly all the offspring of such marriages are very near-sighted. Members of families in which high-grade myopia is frequently complicated by detachment of the retina should be prevented from having offspring. As the statistics on this subject are not the best, it is impossible to state just what can be accomplished by eugenic measures. It is difficult to establish any universal criteria for the application of eugenics in connection with hereditary eye disorders. Yet such criteria are essential in view of compulsory notification and the threatened penalty if such notification is neglected. To procure data for the establish-

ment of such criteria, it has been proposed that an ophthalmologic census of Germany's blind population be undertaken.

Professor Löhlein, director of the Freiburg University eye clinic, contributed a few remarks. One of the controversial points of this whole question is: What constitutes blindness? The sterilization law has obviously a condition in mind in which a person is "practically blind," and does not envisage theoretically complete blindness with absolute exclusion of light sensation; but even the notion of being "practically blind" may be conceived of in various ways. It may designate a condition in which a person is unable to find his way about in a strange region; or, on the other hand, it may signify that a person does not possess adequate vision to profit by the training received in an ordinary school or by preliminary training for the prosecution of ordinary callings. Every ophthalmologist has observed cases in which persons with scarcely one tenth of normal visual acuity are able to get along fairly comfortably in times of stress by reason of their grim determination, whereas many other persons with much better vision are, to all purposes, blind. Another controversial point is the relative frequency of hereditary blindness. No one can supply reliable statistics on this question, but possibly it may be said that the truth lies somewhere between Kraemer's figure of 3.85 per cent of all cases of blindness and Verschuer's estimate of 33 per cent, which is certainly exaggerated. Löhlein holds the view that it would be well to extend the application of the law as first formulated. Difficulties for the ophthalmologist begin at the point at which he has to deal with hereditary eye disorders that, in a certain percentage of cases, actually render the patient practically blind but that frequently are inherited in only a mild form, so that they influence visual acuity but slightly, as, for example, in the case of congenital cataract and in hydrophthalmos, which may appear in a group of brothers and sisters sometimes in grave, sometimes in mild, forms. Each individual case must therefore be judged on its merits. The problem is to discover why, in a group of siblings, the offspring of the same parental stock, some persons develop a grave and others a mild type of the hereditary disorder. The phenomenon may doubtless be explained by environmental influences, in the broadest sense of the term, or by a predominant influence of either parent. In the event of a close decision it must be determined to what extent some particularly valuable hereditary quality known to exist in the family may be given compensatory consideration; for example, when there is evidence of high musical talent or similar hereditary qualities; for it goes without saying that provision must be made for carrying over into coming generations hereditary qualities of an especially high order. Thus can be seen that the questions concerning persons with reduced vision are much more complicated than as regards persons with hereditary weakmindedness; for seldom will there be any doubt about the need of preventing weakminded offspring.

Reorganization of the Confidential Physicians in the Krankenkassen

A short time ago the krankenkassen were completely reorganized. In connection with many other changes, it is fortunate that the ambulatoriums, which the medical profession had long combated as undesirable for mass treatment, were closed (THE JOURNAL, April 28, 1934, p. 1414). At the same time, a thorough reorganization of the service of confidential physicians was undertaken, which formerly had often awakened the distrust of the insured and of that portion of the medical profession that had retained its independent practice. The confidential physicians are now full time officers, being engaged under a life contract and being entitled to draw a lifelong annuity on completion of their service period. They are prohibited from engaging in any form of outside activity other than literary work and the estimation of degrees of disability. Part time confidential physicians are called on only for the performance of special tasks. The chief duty of the confidential physicians is to verify the diagnoses of the kassenärzte or, in some cases, to establish a diagnosis. The testing of the working capacity of insured members is of secondary importance in the lineup of their duties. The confidential physicians are under obligations, in every single case, to make their own diagnosis on the basis of a carefully prepared history and a thorough examination, with a setting forth of the scientific reasons for the opinions advanced. It is their duty to get in touch with the attending physician. A service of confidential physicians has been organized in Berlin at each of the twenty-nine administrative centers of the Allgemeine Ortskrankenkasse, and likewise at the administrative centers of the largest special ortskrankenkassen. At the centers that have a large number of members, complete "institutes" for confidential physicians, with a special laboratory and complete roentgen equipment, have been created, which do research for the confidential physicians of smaller administrative centers. In general, there is one confidential physician to from 20,000 to 25,000 insured. The daily performance of the confidential physician is placed at twenty examinations, in addition to extensive administrative work. For the more difficult laboratory researches a special institute is available.

To corroborate the diagnosis, special hospitals for observation have been provided, which deal solely with diagnosis. In these observation hospitals the average observation period is only 5.8 days, as compared with seventeen days in the general hospitals.

The numerical status has improved as a result of the reorganization of the krankenkassen. Whereas, in recent years, the average total number of insured members who were on the sick list was 1 per cent in excess of the average total for the reich, today that excess has been eliminated. This 1 per cent amounts at present for the Berlin ortskrankenkassen to about 8,800 patients, which, with an average daily sick benefit of 1.75 marks ($0.68), amounts to 15,400 marks ($6,000) a day, or 5,000,000 marks ($2,145,000) annually, aside from all other expenses. The whole service of confidential physicians, including the cost of the physicians for the observation hospitals and the special laboratories and institutes, will cost, as nearly as can be estimated, 1,500,000 marks ($585,000), so that, according to this computation, these additional expenditures would be offset by a decrease in the total average number of patients amounting to only 0.25 per cent.

Departments for the detection of the most important racial diseases have been created; namely, for tuberculosis, cancer, diabetes and rheumatism. In addition, a center has been established that deals with the heredobiologic scrutiny of the population of Berlin. To these centers just mentioned are sent the corresponding reports of all the service centers of the confidential physicians. These centers then deal further with these patients. It is hoped that in this way all unknown cases will be brought to the proper centers without delay. For example, the tuberculosis central carries out a systematic examination of all persons living in a household known to be tuberculous and, if indicated, inaugurates treatment of all persons infected and prophylactic treatment of all persons menaced. From 100 to 120 menaced children may be sent at one time to a bath establishment for children. Thus far this tuberculosis central has ferreted out more than 4,500 active cases of tuberculosis, about 40 per cent of which were unknown.

The diabetes central has detected so far more than 1,000 cases. The total number of manifest cases of diabetes in Berlin amounts to more than 10,000, with an additional 40,000 suspects. By means of a new method, it has proved possible to establish, as a rule, the proper nutrition of patients within

a few days without hospital observation, solely with the aid of ambulant laboratory study. The other centrals function correspondingly. In association with the service of the confidential physicians, a special welfare service through welfare aid workers, who visit patients in their homes, has been created.

ITALY

(From Our Regular Correspondent)

July 15, 1934.

Meeting of Academy of Medicine

The Academy of Medicine met recently in Turin, under the chairmanship of Professor Tirelli. Bizzozero and Ferrari spoke on cutaneous allergic reactions in syphilis. The researches were carried out on more than 100 persons, on healthy persons who served as controls, and on a group of persons with tertiary manifestations. It developed that in syphilis there is frequently a hypo-ergy of moderate grade toward tuberculin, which is accentuated during the secondary exanthems and becomes attenuated with the disappearance of the exanthem. One observes often hypo-ergy also toward heterogenous proteins and living streptococci. In syphilitic patients with tertiary cutaneous manifestations, inconstant reactivity toward various antigens was observed in six patients. The speakers hold that this reaction is to be regarded as having also the character of specificity.

Rizzatti and Levi reported the results of treatment of epilepsy by the periodic introduction of air by the lumbar route. The experiments were carried out by the introduction of from 5 to 40 cc. of filtered air every ten to fifteen days. In thirteen cases so treated, they observed no serious disturbances. In seven cases they noted an appreciable diminution of the attacks, although they reduced the anticonvulsive treatment to from 0.05 to 0.10 Gm. of phenobarbital.

Rizzatti and Martinengo reported hematologic data they had collected on the families of persons affected with dysthymia. Since persons presenting dysthymia have a marked lymphoid tendency, the speakers considered the phenomenon to be chiefly of a constitutional order and sought to find evidence of it in the family history of the patients. On studying into the histories of six families with typical cases of dysthymia, they were able to find a lymphoid tendency, sometimes in the maternal blood stream, and sometimes in the blood stream of the father, and in one case in both. They reported that, as a rule, this peculiarity of the blood affects preferably one sex of the family.

Segre spoke on the speech of laryngectomized persons. A person who has undergone laryngectomy may, through practice, reacquire a form of speech, which will take the form of a pseudowhispering or a pharyngeal voice, analogous to that observed in a person who has been subjected to tracheotomy; but such a voice is not fully adequate. It is, however, possible, by means of careful reeducation, to secure a phonation suitable for narration, with a voice of the pharyngeal type.

The Kahn Reaction in Mental Patients

In 120 mental patients, Dr. Visalli applied both the Wassermann and the Kahn tests. He found a certain degree of positiveness of the test in suspected patients and also in some who were not suspected. These results, according to the speaker (who reported them to the Academy of Physical Sciences of Ferrara), support the idea that the syphilitic nature of mental diseases is more frequent than is supposed. The cases of syphilis would appear even more numerous if means of detection more precise and more specific than the Kahn test could be devised. The Kahn test gave negative results in some cases that were certainly syphilitic. The speaker holds that the Kahn test should be applied as a current method of research to all mental patients.

During the discussion, Ravenna stated that for some time the laboratory of the Ferrara Hospital had applied the Wassermann and Kahn tests in a parallel manner. He gave it as his impression that the Kahn test, although more sensitive than the Wassermann test, is somewhat less specific. Hence, from a clinical point of view, a positive Kahn test, unless it is supported by other data, does not seem to the speaker to be sufficient evidence to decide on the existence of a syphilitic infection. Rietti gave the results of his laboratory experiments with the various flocculation tests that had been proposed in recent years. He holds that at present none of these tests can replace the Wassermann test but can only supplement it. If the results are discordant and there are no anamnestic or clinical data that point to the existence of syphilis, great caution must be exercised in evaluating positive results of the flocculation tests.

Leonardo da Vinci's Knowledge of Embryology

Dr. Mozzetti made a study of the embryologic drawings of Leonardo da Vinci and the notes appended thereto and reported to the Società medico-chirurgica of Venice. In addition to the recognized priority with regard to the behavior of the fetus in the uterus and to the placental circulation, it seems probable that to Leonardo belongs the first description of the ductus venosus, which was named after Aranzio, and also the knowledge of the protective function of the amniotic fluid. The embryogenesis of the liver and the spleen, and the growth of the fetus in the uterus, were described and reproduced by Leonardo. He also gave the first account of placenta praevia centralis. In spite of the inevitable errors due to the times, the name of Leonardo has acquired new splendor from a study of his drawings and notes, and he has achieved the right to be regarded as one of the precursors of the obstetric and gynecologic disciplines.

MOSCOW

(From Our Regular Correspondent)

Aug. 5, 1934.

The Fourth International Antirheumatic Congress

The fourth International Antirheumatic Congress was held at Moscow, May 3-7, under the presidency of Prof. M. P. Konchalovsky. About 800 physicians took part, including 143 delegates from the soviet union and 100 from nineteen other countries. Thirty-nine reports were read, half of them by members of the soviet delegation.

The people's commissar of health, G. N. Kaminsky, told the delegates about the following decisions of the government: In Moscow will be organized a permanent antirheumatic museum; in Sochi and Mazesta, rheumatic clinics, departments of the central institute for studying spas, will be established; at Moscow a children's rheumatologic sanatorium will be built. At Moscow, Leningrad, Charkov and Odessa, medical institutes and institutes for qualification of physicians will be established. Besides this, the soviet government has established two international prizes each of 1,000 rubles for the best work on the clinical and social problems of rheumatism.

The scientific exhibits for the congress consisted of five departments. In the first were the conditions created for eliminating the causes of rheumatic morbidity in the soviet union. The second was devoted to balneologic treatment of rheumatic patients. Soviet spas and the organization of treatment were shown. The pathology of rheumatism was concentrated in the third department. The geographic spreading of acute rheumatism, different types, and methods of treatment were shown. The other departments of the exhibition concerned materials about rheumatism in children and industrial workers. Methods of combating rheumatism among miners, seamen, railway workers, motor transport workers and machine builders were shown.

As the congress proceeded in the Moscow House of Scientists, the delegates' chairs had radio ear phones and all reports were translated into Russian, English, German and French.

The first day was devoted to the clinical side of acute rheumatism. Prof. M. P. Konchalovsky explained rheumatism according to the allergic theory and denies the presence of a specific infections agent. In the discussion, Prof. D. D. Pletniev of Moscow spoke on disturbances in the peripheral blood stream during acute rheumatism. Professor Faar of Germany demonstrated that the Aschoff nodes of the heart are more clearly manifested in children than in adults. Professor Schlesinger of London showed that acute rheumatism is closely connected with meteorological and geographic factors. Prof. L. B. Buchstab of Odessa spoke about a biologic test for rheumatism that he and dozent Jassinovsky worked out. A pathologico-anatomic preparation of rheumatic lesions of the valvular system was demonstrated by Prof. V. T. Talalajev of Moscow and Dr. Iolo of Finland.

The second topic, indications for the balneologic treatment of rheumatism, was discussed May 5. Prof. G. M. Danichevsky of Moscow illustrated the method of choosing patients who are to be sent to the soviet health resorts. In soviet Russia at the beginning of 1932 there were 232 mud lakes, 163 salt lakes, 301 hydrogenic sulphide springs, 272 carbonic acid spas, 92 warm springs, 8 radioactive spas and 650 other mineral spas. One million eight hundred thousand patients visited the soviet health resorts and rest houses in 1933; 135,000 rheumatic patients were treated in health resorts during 1932.

Prof. S. S. Nalbandov of Odessa spoke of indications for mud treatment of the peripheral nervous system. His material includes 2,632 cases. The best results are obtained in the mud treatment of neuralgia, with 91.6 per cent of improvement.

Professor Pisani of Italy gave a classification of rheumatic diseases. Prof. N. A. Valedinsky of Moscow spoke about the influence of hot hydrogen sulphide baths on the hemodynamic and trophic processes in cardiovascular diseases.

The third subject was rheumatism of transport workers, mine workers and metal workers—the significance of the occupational factor in rheumatic diseases. Prof. I. G. Gelman of Moscow read a paper on rheumatism among machine builders. In connection with the mechanization of industry, the rheumatic morbidity continuously decreases. It is most evident in the auto tractor industry, 41 per cent less, and in general machine building industry, less by 27 per cent. The principal rheumatogenic factors are muscle strain, static work requiring an incorrect position of the body, and overheating, with currents of air and unequal cooling, minor traumas and long contact with cold metal in workshops. The most important rheumatic diseases seen among machine builders are myosites and myalgias (1.3 to 1,000 workers), acute neuralgias (0.9 to 1,000) and chronic articular rheumatism (0.7 to 1,000). Professor Platte of Germany read a paper on the conditions in mines and in metal works.

The final meeting of the congress was held in the Palace of Culture of the proletarian district of Moscow. There were present many workers who greeted the congress.

The fifth Antirheumatic Congress will be held in Lund, Sweden, in September 1936.

After the sessions of the congress the delegates divided in several groups and made a trip to the soviet health resorts and spas.

Institute of Experimental Medicine

The government published a decree about the removal of the Institute of Experimental Medicine from Leningrad to Moscow. The architectural projects of the institute's buildings are ready. They will be built in the style of the Italian renaissance. It is proposed to build stomatologic, pediatric and neuropsychiatric clinics, laboratories for physiology, morphology, biology, biochemistry and biophysics, a hall for 1,500 people for international congresses, a library consisting of 700,000 volumes, and other auxiliary buildings. About 100,000,000 rubles will be spent on the building of the institute during the second five year plan (1932-1937). When the buildings are finished, the Institute of Experimental Medicine will be the largest scientific and practical medical establishment in the world.

The Death of R. R. Vreden

Prof. Roman Romanovich Vreden died, February 7, in Leningrad, at the age of 67. During the Russian-Japanese war Professor Vreden was chief surgeon at the front. From 1906 he was the director of the St. Petersburg Orthopedic Institute, from 1918 he was professor of orthopedic surgery in the Leningrad Medical Institute and from 1924 he directed the orthopedic department of the State Traumatologic Institute. He was the founder of orthopedic surgery in Russia. He published more than a hundred scientific works, the best known being a practical manual.

JAPAN

(From Our Regular Correspondent)

June 30, 1934.

National Sickness Insurance

Sickness insurance, which has been in force for the last seven years, has developed satisfactorily, although it was limited to a small part of the laboring classes. Now the government has made public a new plan of national sickness insurance which will be made on a large scale and over a large part of the country. The authorities say that the scheme is so large that three or five years will pass before it can be fully enforced. This system includes all except those who have a large income and those who are not able to pay. Sickness and accidents should be insured, but death and childbirth may be included if wanted. It is believed premature to add any further insurance now. The insurer will be any self-governing community and should be a territorial body—a town, city or village. As an exception, men of the same trade may be permitted to organize an association. In the territorial association all the residents should be insured compulsorily. Five or six hundred units will be established every year, and twenty years will probably be required to complete this system all over the country. The insurance allowance in kind is the rule and the cash allowance is the exception. As one kind of insurance is apt not to suit the circumstances in different districts, the details are entrusted to each association or body, but under close superintendence and guidance of the government. The expenses should be paid by the members, but the state, city, town or village may give a subsidy. Freedom of choice of physicians will be given.

To mediate disputes about the medical contracts, an office will be established. The insurance will be different according to the circumstances of each locality, and those members who are not to be given an allowance will be reimbursed to a certain limit.

It is anticipated that over 30,000,000 persons will be insured out of 50,000,000 persons who qualify for insurance. When this system has been completed, the present positions of the practitioners will have to be entirely changed.

Diphtheria Among Silk Mill Workers

Cases of diphtheria in 1933 amounted to 28,518 throughout the country, with 5,270 deaths, a much higher rate than in ordinary years. In Tokyo and in its suburbs there were 6,066 cases, which was 2,000 cases more than usual. There were 10.28 cases per 10,000 of population. There is a silk reeling mill, where 145 girls, 16 men workers and 11 members of the owner's family lived in the dormitory. This mill stands in a village with a population of about 7,500, within two hours' run by train from Tokyo. In this village there were eight cases

of diphtheria in 1931, three cases in 1932 and eleven cases in 1933. But on April 10 this year, in this mill, there broke out one case; by May 13 the outbreak amounted to forty cases and twenty carriers. All of these were slight attacks and in a week or two all the patients left the isolation hospital and no deaths were reported. In Tokyo and its vicinity 85 per cent of the patients were children under 10 years of age. The metropolitan police board is now encouraging immunization, which has so long been neglected among adults, especially in factories.

Outbreak of Encephalitis

As was expected, summer encephalitis has broken out in a few districts, one of which is the prefecture of Okayama. By the end of June more than fifteen cases were reported. Dr. Shoji Takeda, director of the Kobe Prefectural Hospital, has presented a report on this disease from the standpoint of climatic and geographic conditions. He says that more than two cases in the same family have never been found. The cases are widely distributed, but every summer cases occur in the same place. Most of the patients are more than 40 years of age. In the last ten years the largest number of cases occurred in 1924 (827 cases), 1926 (385), 1927 (319), 1929 (362) and 1933 (152). In these years there was little rainfall and the heat was intense in August and September. No matter how violently it raged in the hot months, the cool fall season never failed to cause this disease to disappear completely. The disease occurs chiefly in the three prefectures lying on the coast of the Inland Sea, and the number of the cases for the past ten years has amounted to 6,736. These prefectures are the chief salt-making districts in Japan. In the salt manufacturing industry little rainfall and high temperature are most necessary. Most cases are found in the farm villages and but few in the seashore town or villages.

Admiral Togo and His Family Physician

The death of Admiral Togo in May disclosed an episode of nobility of character of both the patient and the family physician. Dr. Naojiro Kato, the admiral's attending physician, was merely a private practitioner and was almost unknown except among his patients. He was neither a famous professor nor a noted director of a big hospital, but he enjoyed the confidence of this great hero over thirty years and he was the medical attendant who was at the deathbed. It has come to be known since the admiral's death that Dr. Kato was a man of deep sincerity and so humble that he never showed pride at being Togo's attending physician. Whenever the admiral fell sick he seldom called other physicians in consultation, but was so careful that he went quietly to prominent practitioners in the capital to ask advice. He was a faithful student of medicine and regularly attended the short course given in the Tokyo Imperial University Medical Department for the past ten years that he might keep up with the progress of medicine. To honor him, his friends and associates and the graduates of the Nippon Medical College held a meeting, and this story is widely told as an example of the ideal relation between physician and patient.

Cancer Research Institute Completed

The completion of the new buildings of the Cancer Research Institute was celebrated, June 20. Prince Fushimi, the president of the Cancer Research Society, was present. Dr. M. Nagayo is the new chief and Dr. R. Inada is the new director of the hospital attached to it. To assist in this work the new Mitsui Foundation has offered to the institute a quantity of radium, which is reported to have cost a million yen and to consist of 5 Gm. of radium bromide and radium sulphate to be bought in the Belgian Congo, Africa. This is the largest single amount of radium that Japan has ever had.

Marriages

NORMAN JAMES HAVERLY, Lieutenant Commander, M. C., U. S. Navy, Boston, to Miss Agnes Katherine Gordon of Brookline, June 30.

JOSEPH E. O'DONNELL, Champaign, Ill., to Miss Palma Louise Utke of Enderlin, N. D., in Chicago, August 19.

E. TERRILL MONTGOMERY, Garden City, N. Y., to Miss Joan Marie Kimble of Honesdale, Pa., June 16.

ROLAND M. WEBSTER, Strawberry Plains, Tenn., to Miss Clara Evelyn Brown of Florence, Ala., June 9.

PERRY DAVID MELVIN, Ancon, Canal Zone, to Miss Judith Standard Fowler of New Orleans, August 10.

PHILIP WILHELM MORGAN, Emporia, Kan., to Miss Alfreda Neal of Melvern at Kansas City, Mo., July 7.

HARVEY NATHANIEL MIDDLETON, Anderson, Ind., to Miss Stella B. Walker of Indianapolis, June 16.

WILLIAM HUGH MILLER, New Carlisle, Ohio, to Miss Margaret Rose Dillon of Middletown, June 2.

W. BURLEIGH MATTHEW, Lafayette, Ind., to Miss Ruth Suzanne Adams of Beech Grove, June 1.

HARRY DALE MOWRY, Ambridge, Pa., to Miss Mildred Hatfield of Harrington, Del., August 21.

HIRAM BURNARD MORGAN, Inman, S. C., to Miss Georgia Marie Dunn of Charleston, June 14.

PAUL THOMAS O'BRIEN, Menasha, Wis., to Miss Margaret Mary Dohr of Appleton, July 31.

ISAAC NEWTON KUGELMASS to DR. ELLA H. FISHBERG, both of New York, August 18.

EDGAR MAYER to Mrs. Rheta Guggenheim Jaffe, both of New York, July 11.

HARRY TABACHNICK to Miss Lillian Polli, both of Milwaukee, June 25.

SYLVESTER DARLING to Miss Helen Barnes, both of Milwaukee, June 25.

Deaths

Archibald E. Baker ⊕ Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1889; clinical professor of gynecology at his alma mater; fellow of the American College of Surgeons; past president of the Tri-State Medical Association and the South Carolina Medical Association; formerly councilor of the first medical district of the South Carolina Medical Association; owner of the Baker Sanatorium; aged 71; died suddenly, July 31, at his summer home on Folly Island, of heart disease.

Edwin Caldwell Simonton, Shreveport, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1913; member of the Louisiana State Medical Society; fellow of the American College of Surgeons; on the staffs of the North Louisiana Sanitarium, Shriners' Hospital for Crippled Children, Tri-State and Shreveport Charity hospitals; aged 48; died, July 31.

Julius Eduard Lehmann, Winnipeg, Manit., Canada; University of Toronto Faculty of Medicine, 1893; M.R.C.S., England, and L.R.C.P., London, 1901; formerly associate professor of clinical surgery, University of Manitoba Faculty of Medicine; fellow of the American College of Surgeons; on the staff of the Winnipeg General Hospital; aged 66; died suddenly, July 3.

William Francis Freeman, Los Angeles; University of Toronto (Ont.) Faculty of Medicine, 1883, and Faculty of Medicine of Trinity College, Toronto, 1883; aged 77; for many years resident physician to the Santa Fe Coast Lines Hospital, where he died, June 6, of arteriosclerotic heart disease.

John James Walker, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1906; demonstrator in medicine at his alma mater; health officer of Ste. Anne de Bellevue, 1913-1914; aged 53; for many years on the staff of the Royal Victoria Hospital, where he died, May 4.

Andrew G. Payne ⊕ Greenville, Miss.; Kentucky School of Medicine, Louisville, 1893; fellow of the American College of Surgeons; past president of the Mid-South Post Graduate Medical Assembly; on the staff of the King's Daughters' Hospital; aged 65; died, July 31, of heart disease.

George **Weare Weymouth** ✠ Lyme, N. H.; Dartmouth Medical School, Hanover, 1882; in 1932 was presented with a gold medal marking the completion of fifty years' membership in the New Hampshire Medical Society; aged 77; died, May 30, in the Mary Hitchcock Hospital, Hanover, of coronary occlusion.

William James Boyd, Oklahoma City, Okla.; University of Buffalo School of Medicine, 1895; formerly professor of gynecology, Epworth College of Medicine; veteran of the Spanish-American War; aged 73; died, July 13, in Colorado Springs, of cerebral hemorrhage.

John M. Johnson, Giddings, Texas (licensed in Texas under the Act of 1907); member of the State Medical Association of Texas; for many years member of the state legislature; formerly county health officer; aged 64; died suddenly, May 14, of heart disease.

Harry Lyman Putnam, St. Petersburg, Fla.; Bellevue Hospital Medical College, New York, 1890; member of the Florida Medical Association; past president of the Pinellas County Medical Society; aged 70; died, July 27, in a hospital at Asheville, N. C.

John Edward Simpson, Sturgeon Bay, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1901; served during the World War; formerly city health officer; aged 62; died, July 24, in the Wisconsin General Hospital, Madison, of bronchopneumonia.

Joseph A. Archambault, Essex Junction, Vt.; University of Vermont College of Medicine, Burlington, 1901; member of the Vermont State Medical Society; formerly instructor in medicine at his alma mater; aged 59; died suddenly, May 31, of heart disease.

Thomas Boykin Clegg ✠ Greenville, S. C.; Emory University School of Medicine, Atlanta, Ga., 1925; on the staff of the Shriners' Hospital for Crippled Children; aged 37; was drowned, July 23, while fishing in the surf of Seabrook Island, near Charleston.

Patrick Joseph Barrett, Utica, N. Y.; Albany Medical College, 1892; member of the Medical Society of the State of New York; served during the World War; on the staff of St. Elizabeth's Hospital; aged 63; died suddenly, July 16, of heart disease.

James F. Barnwell, Johnson City, Texas (registered in Texas, by the state board of medical examiners, under the Act of 1907); county health officer; formerly bank president and school trustee; aged 59; died, June 16, of carcinoma of the spine.

Morris Hirsch Kahn, New York; Cornell University Medical College, New York, 1909; fellow of the American College of Physicians; formerly on the staff of the Beth Israel Hospital; aged 45; died, July 13, in the Mount Sinai Hospital.

Thomas Ralph Castles, Albia, Iowa; Northwestern University Medical School, Chicago, 1907; member of the Iowa State Medical Society; aged 52; died, July 29, in the Iowa Methodist Hospital, Des Moines, of essential hypertension.

Richard Calvin McClure, Kansas City, Mo.; University Medical College of Kansas City, 1900; member of the Missouri State Medical Association; formerly a dentist; aged 62; died, May 19, of hypostatic pneumonia and Parkinson's disease.

Louie Elsworth Langley, Williamsport, Pa.; University of Maryland School of Medicine, Baltimore, 1910; member of the Medical Society of the State of Pennsylvania; on the staff of the Williamsport Hospital; aged 49; died, May 31.

Horace Thea Fortner, Jellico, Tenn.; University of Tennessee Medical Department, Nashville, 1925; member of the Tennessee State Medical Association; aged 34; was drowned, August 10, in Harrington Lake, near Danville, Ky.

Arthur Stevenson McElroy, Ottawa, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1897; for many years on the staff of the Ottawa Civic Hospital; aged 65; died, April 20, of cerebral hemorrhage.

James Lambert Melvin, Guthrie, Okla.; John A. Creighton Medical College, 1896; past president of the Logan County Medical Society; aged 78; died, July 24, in Bartlesville, of toxemia as the result of prostatitis and cystitis.

Heman Rowlee Bull ✠ Grand Junction, Colo.; Jefferson Medical College of Philadelphia, 1887; fellow of the American College of Surgeons; for many years on the staff of St. Mary's Hospital; aged 71; died, June 21.

Alfred Napoléon Rivet, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1888; emeritus professor of toxicology at his alma mater; served during the World War; aged 68; died, April 21.

Farrar Burr Parker, Long Beach, Calif.; Tulane University of Louisiana School of Medicine, New Orleans, 1916; served during the World War; aged 48; died, June 26, of cardiovascular renal disease.

John G. Motley ✠ Henderson, Texas; University of Louisville (Ky.) School of Medicine, 1891; past president of the Rusk County Medical Society; aged 71; died, June 17, in a hospital at Shreveport.

Gershon Campbell Bryant ✠ Milan, Tenn.; Memphis (Tenn.) Hospital Medical College, 1903; past president of the Gibson County Medical Society; aged 58; died, July 22, of auricular fibrillation.

William N. Howard ✠ Cape Girardeau, Mo.; St. Louis Medical College, 1890; for many years member of the local board of health; on the staff of St. Francis Hospital; aged 71; died, July 29.

Marjorie Sharps Jefferies Wagoner, Bryn Mawr, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1922; physician to Bryn Mawr College since 1924; aged 37; died, June 22.

Rafael Velez Lopez, Rio Piedras, P. R.; Universidad Central de España Facultad de Medicina, Madrid, Spain, 1897; member of the Medical Association of Puerto Rico; aged 62; died, June 8.

J. A. Emile Choquette, St. Bruno, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1900; aged 58; died, March 4.

Frank F. Fisk ✠ Price, Utah; Rush Medical College, Chicago, 1897; vice president and past president of the Carbon County Medical Society; aged 66; died, July 21, of heart disease.

Burton B. Buck ✠ Waterville, Ohio; Eclectic Medical Institute, Cincinnati, 1899; aged 71; died, August 3, in the Women's and Children's Hospital, Toledo, of cerebral hemorrhage.

Benjamin Franklin Parrish, Midway, Ky.; Bellevue Hospital Medical College, New York, 1890; aged 68; died, July 11, in the Good Samaritan Hospital, Lexington, of heart disease.

Michael Timothy Collins, Sedalia, Mo.; Medical College of Ohio, Cincinnati, 1889; member of the Missouri State Medical Association; aged 76; died, July 20, of cerebral hemorrhage.

William Edgar Christie ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1917; on the staff of the Presbyterian Hospital; aged 40; died, July 29, at Beach Haven, N. J.

Francis Eugene Brennan, Flushing, N. Y.; New York Homeopathic Medical College and Hospital, 1894; aged 61; died suddenly, July 30, at his country home in Cold Brook.

Sylvain Beer Wolff, Opelousas, La.; Johns Hopkins University School of Medicine, Baltimore, 1914; past president of St. Landry Parish Medical Society; aged 43; died, June 13.

Charles Deems Bell, Wilmington, N. C.; University of Maryland School of Medicine, Baltimore, 1883; aged 76; died, June 17, in the Bulluck Hospital, of coronary thrombosis.

James Daniel Marion Black, South Fork, Mo.; Memphis (Tenn.) Hospital Medical College, 1890; member of the Missouri State Medical Association; aged 72; died, May 14.

Joseph Patrick O'Hanlon, Brooklyn; Long Island College Hospital, Brooklyn, 1891; aged 63; died, July 5, in the Hamilton Hospital, following an operation for cholelithiasis.

Charles James Devlin, Swissvale, Pa.; Jefferson Medical College of Philadelphia, 1916; member of the Medical Society of the State of Pennsylvania; aged 45; died, June 20.

James Palmer Rankin, Stratford, Ont., Canada; Faculty of Medicine of Trinity College, 1878; formerly member of the city council and school board; aged 79; died, June 15.

Preston Charles Jenkins, Roxobel, N. C.; Bellevue Hospital Medical College, New York, 1873; past president of the Bertie County Medical Society; aged 84; died, July 5.

Evan Ellis Owen, Louisville, Ky.; University of Louisville School of Medicine, 1911; served during the World War; formerly city health officer; aged 45; died, July 20.

Franklin W. Palmer, Chatsworth, Ill.; Barnes Medical College, St. Louis, 1898; aged 61; was drowned, July 6, while fishing in the Kankakee River near Wilmington, Ill.

Joseph Rymal Smith, Grimsby, Ont., Canada; Victoria University Medical Department, Coburg, 1892; aged 67; died, April 1, in the Hamilton (Ont.) General Hospital.

Joseph William Stringer, Taylorsville, Miss.; Mississippi Medical College, Meridian, 1909; aged 61; died, June 24, in a hospital at Laurel, of cerebral hemorrhage.

David Finlay Marr ✠ Bradford, R. I.; Tufts College Medical School, Boston, 1911; aged 57; died, May 15, of adenocarcinoma of the left ureter, with metastases to the liver.

James Luther Moore, New Stanton, Pa.; University of Pittsburgh School of Medicine, 1932; aged 32; died, in July, at the Westmoreland Hospital, Greensburg.

Henry Deischer Stichter, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1889; aged 68; died, July 14, of carcinoma of the stomach.

Samuel P. Deem, Rutland, Ohio; Baltimore Medical College, 1893; member of the Ohio State Medical Association; aged 70; died, July 5, of angina pectoris.

H. Allen Booth, Pacific, Mo.; Missouri Medical College, St. Louis, 1886; aged 77; died, July 26, in the Barnes Hospital, St. Louis, of uremia and arteriosclerosis.

Mathias Borts ✠ Cleveland; University of Wooster Medical Department, Cleveland, 1881; aged 81; died, July 22, of arteriosclerosis and cerebral hemorrhage.

Jonathan Titus McDonald, San Francisco; Cooper Medical College, San Francisco, 1884; aged 81; died, May 31, of angina pectoris and coronary sclerosis.

Elmer Grant Paxton, Cedar Rapids, Iowa; Ohio Medical University, Columbus, 1896; aged 64; died, July 15, of paralysis agitans and arteriosclerosis.

Mary Francilla McCrillis, Quincy, Mass.; Boston University School of Medicine, 1882; aged 77; died, July 20, in the Glenside Hospital, Boston.

Thomas Edward Standifer, Turkey, Texas; Louisville (Ky.) Medical College, 1899; aged 70; died, May 20, in a sanatorium at Oklahoma City.

George Arthur Schmidt, Cobalt, Ont., Canada; Trinity Medical College, Toronto, 1899; aged 62; died, June 25, in the Toronto General Hospital.

Max Von Beust, New Albany, Ind.; Hospital College of Medicine, Louisville, Ky., 1881; aged 80; died, May 24, of chronic cystitis and uremia.

Erle Edson Benedict ✠ Minneapolis; University of Minnesota Medical School, Minneapolis, 1901; aged 57; died, August 8, of heart disease.

William Allen McKelvey, Opolis, Kan.; St. Louis College of Physicians and Surgeons, 1901; aged 70; died, June 13, in a hospital at St. Louis.

Atticus Gwynn Blanton ✠ Sonora, Texas; Chattanooga (Tenn.) Medical College, 1907; aged 52; was killed, July 27, in an automobile accident.

Edward Wesley Harrison, Winfield, Iowa; Keokuk (Iowa) Medical College, 1894; aged 66; died suddenly, July 6, of cerebral hemorrhage.

William T. Simrall, Mount Sterling, Ky.; Louisville Medical College, 1873; aged 92; died, July 22, in Ellicott City, Md., of heart disease.

William Witter, Norwich, Conn.; Yale University School of Medicine, New Haven, 1865; aged 93; died suddenly, May 27, of heart disease.

Amos Wright Campbell, Prince Albert, Ont., Canada; Victoria University Medical Department, Coburg, 1880; aged 84; died, June 12.

Charles W. Piper ✠ Chicago; Chicago Medical College, 1891; aged 69; died, July 11, of coronary occlusion and arteriosclerosis.

Clarence Joseph Pullen ✠ Georgiana, Ala. (licensed in Alabama in 1905); aged 60; died, July 15, in a hospital at Greenville.

Thomas J. Gowan, Hornings Mills, Ont., Canada; Western University Faculty of Medicine, London, 1892; aged 75; died, April 28.

Charles Manley Foster, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1884; aged 74; died, April 9.

Orville B. Yager, Glencoe, Ky.; Miami Medical College, Cincinnati, 1867; Civil War veteran; aged 92; died, May 28.

Margaret Cowan Calder, Wingham, Ont., Canada; University of Toronto Faculty of Medicine, 1907; died, in April.

Christian Heidemann, St. Louis; Marion-Sims College of Medicine, St. Louis, 1892; aged 63; died suddenly, June 15.

Alexander Kahn, Philadelphia; Jefferson Medical College of Philadelphia, 1881; aged 75; died, May 12.

Samuel Moss ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1909; aged 52; died, June 29.

William Bernard McKeon, Troy, N. Y.; Albany Medical College, 1915; aged 42; died, June 19.

Correspondence

MECHANISM OF EXOPHTHALMOS

To the Editor:—The editorial on "The Mechanism of Exophthalmos" in THE JOURNAL, June 30, quotes what is termed "this curious statement" from my recent textbook "Diseases of the Nervous System": "Apart from gross neoplastic and inflammatory lesions of the orbit, the mechanism of exophthalmos is still little understood." Your comment is: "Nevertheless the mechanism of exophthalmos is well understood, though the knowledge would seem to be poorly disseminated."

If the writer of your leader had done me the honor of quoting the article on exophthalmic goiter in my textbook, he would have found the explanation of exophthalmos which he proposes fully discussed and the conclusion drawn that "there is probably overaction of part of the ocular sympathetic fibers, causing retraction of the upper lids and some degree of exophthalmos." I am familiar with the various papers quoted in the leader and I agree that the muscles described by Landström exist and also that stimulation of the cervical sympathetic in animals will produce exophthalmos. In spite of this, however, I do not know of any proof that the exophthalmos of exophthalmic goiter is produced in this way. Indeed, certain points make it difficult to believe that overaction of the ocular sympathetic affords the whole explanation. Cunliffe Shaw has shown that section of the cervical sympathetic in exophthalmic goiter does not cause diminution in the exophthalmos. Numerous surgical studies of the orbital contents in exophthalmic goiter, especially those of Naffziger, have revealed in many cases intense edema of the orbital fat and extra-ocular muscles, with lymphocytic infiltration and, in the late stages, fibrosis. These changes may, of course, be secondary to the exophthalmos, though it seems to me more probable that they are its cause. Even if the exophthalmos is solely due to contraction of the smooth muscle of the orbit, it is not known whether this is produced by excitation of the sympathetic nervous system, centrally or peripherally, nor whether the hypothetical excitation of the sympathetic is brought about by normal or abnormal thyroid secretion, or in some other way.

I have a fairly full acquaintance with the papers on exophthalmos which have been published during the last thirty years and I have discussed the problem with ophthalmologists, pathologists and physiologists. It is disappointing to have to admit that I remain of the opinion expressed in my book that "the mechanism of exophthalmos is still little understood."

W. RUSSELL BRAIN, London.

GROWTH FACTOR FROM ANTERIOR PITUITARY

To the Editor:—I take this opportunity to add my word of commendation to the thousands which I know you have already received on the leading editorial, "Antihormones," in THE JOURNAL, August 18. Dr. Cushing undoubtedly issued a sound note of warning against the indiscriminate use of endocrine products and I am pleased to see you again warning the doctors about so-called isolated active principles. I have in mind chiefly or particularly the extract of the anterior lobe of the pituitary, which I believe is now known to produce a growth factor. My research on cancer cases at the autopsy table has led me to believe that in this condition the anterior lobe is hyperactive. For this reason I cannot help but feel that you have shown the part of wisdom in proclaiming your announcement.

GEORGE A. WYETH, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ENCEPHALITIS AND NARCOLEPSY

To the Editor:—Owing to the fact that I am pretty well muddled over the following terms, I am taking the liberty of asking you for assistance: encephalitis, encephalitis lethargica, sleeping sickness and narcolepsy (sleeping sickness not the African type). Up to last evening at a staff meeting of our hospital I thought I had a fairly good idea of the differentiation from their names as well as the pathology. In the last few years, different members have had, all told, four cases. Three of these cases have been confirmed in diagnosis by men of good reputation away from here. The fourth is the one in particular that has put me out. One of the cases, confirmed by Dr. Dowling of the Mayo Clinic and Dr. Stanley Cobb of Boston, is in my own family. The one in question has been diagnosed encephalitis by one of the local men. My own idea was that encephalitis simply indicated that there is or was something wrong with the gray matter, such as a tumor, injury, disease or malformation. And I called the case encephalitis of narcoleptic type of a mild form. That precipitated an argument, as most of the men felt that encephalitis was not a general term but specified the disease. We are in the same muddle about the pathology. My idea is an edema, or bogginess of the base of the brain. I am unable to connect the following symptoms coming from the spinal nerves: intermittent loss of control of bowel and bladder, epileptiform seizures and so on. I have read all the articles in THE JOURNAL, and Dr. Dowling's pamphlets. Will you please give me the titles of articles and prices, with address of place to purchase them?

J. R. WILSON, M.D., Bennington, Vt.

ANSWER.—In spite of the usage of physicians confronted by these perplexing cases, the latest Dorland, Gould and Steadman dictionaries are a unit in distinguishing these fundamental differences:

Encephalitis (Dorland): inflammation of the brain.

Epidemic (lethargic) encephalitis (Gould): an epidemic form of encephalitis, frequently occurring with influenza, and characterized by drowsiness, apathy, muscular weakness, and paralysis of the third cranial nerve.

Narcolepsy (Gould): an uncontrolled tendency to attacks of deep sleep of short duration; it has been observed in epilepsy and other affections.

The *Quarterly Cumulative Index Medicus* lists narcolepsy under disturbances of sleep.

S. B. Wortis and Foster Kennedy published a short review of narcolepsy last year which might be a good starting point for reading, as the bibliography is extensive. They look on narcolepsy as a symptom complex denoting an underlying neurophysiologic derangement probably of an organic (physicochemical) nature in the region of the third ventricle and the periaqueductal regions. The review was published in the *American Journal of Psychiatry* (**12**:939 [March] 1933). The journal is published at 1500 Greenmount Avenue, Baltimore.

VACCINES IN SINUS INFECTIONS

To the Editor:—Will you please advise me in regard to the use of vaccines, autogenous and otherwise, in cases of two or three years' standing of maxillary sinus infections? The symptoms are simply a profuse sticky mucoid posterior nasal discharge, with clouding of the sinus in the roentgenogram. The temperature reaches 99.4 F. daily. Please omit name.

M.D., New York.

ANSWER.—The symptoms given do not substantiate a diagnosis of a suppurative condition in the maxillary sinuses. The diagnosis of maxillary sinusitis is based first of all on a careful examination (usually after shrinking of the nose), which reveals the presence of pus in the middle meatus. Roentgen observations and the results of transillumination are taken into consideration. The offending sinus is washed out with an irrigating solution and the presence of pus in the cavity substantiated. The maxillary sinus may still, under these circumstances, be acting only as a reservoir for an infection in the frontal and ethmoid sinuses, and only after disease in these has been ruled out can one say that the maxillary sinus is the sole offender. From time to time one sees persons in whom roentgen examination shows the so-called clouding of the sinus. This may not mean an active infection. It may be the evidence of a thickened lining membrane due to disease in the far past, and which is now, to all intents and purposes, clinically healed. Furthermore, such clouding of the maxillary sinuses is seen in the roentgenogram in the absence of suppurative disease and may then be due to an allergic or other state.

Postnasal discharge is frequently seen in certain people and in certain climates and does not necessarily bear any relationship to suppurative sinusitis. Admitting in the case cited that there is present a bilateral maxillary sinusitis as evidenced by the roentgen examination and a postnasal discharge, the proper treatment, at first, would be to irrigate the sinuses for a time to see whether this alone might not ameliorate the condition or cause it to disappear. It is assumed that there are no marked anatomic or pathologic conditions present, such as polyps or a badly deviated septum.

In the event that properly conducted and repeated lavage does not result in the improvement desired, some form of operation should be considered, for it is not likely that a suppurative condition present for three years would yield to vaccines, autogenous or otherwise. The use of vaccines in sinusitis is debatable. Many specialists of high quality have no faith in them. It is quite possible that vaccines will be found helpful in a small percentage of acute cases, and some seem to think that their use is occasionally valuable in preventing acute recurrences.

Chronic sinusitis of three years' standing would not often, in itself, produce a temperature reaching 99.4 F. daily. It would be advisable to search for some other cause for the elevation of temperature.

DIAGNOSIS AND TREATMENT OF PURPURA

To the Editor:—I have under my care a boy, aged 6 years, who gives the following history: About one and a half years ago he had a gastro-intestinal upset with pains and cramps in the abdomen. Appendicitis was suspected, but he seemed to have complete recovery without operative treatment. About six months ago while on a vacation there was a recurrence of the gastro-intestinal upset with severe cramps, pain and vomiting. He was observed by nine physicians, and the consensus was appendicitis. They were about to operate when the symptoms subsided so suddenly that this plan was abandoned. About a week ago the child suffered another acute attack with severe abdominal pain, nausea and vomiting. He vomited blood before I arrived. On my arrival about two hours after the beginning of the attack, all the intestinal symptoms had disappeared. Large hemorrhagic spots covered the arms, the legs and back. The mucous membrane of the mouth and tongue also showed hemorrhagic areas, which were still oozing. My diagnosis was purpura hemorrhagica. I should like to know the different types of treatment and also the prognosis in such a case. Kindly omit name.

M.D., New York.

ANSWER.—Before discussing the various types of treatment and prognosis, it may be well to say a few words about the diagnosis in this case. The term purpura hemorrhagica is usually applied to the thrombopenic form of purpura, or Welhof's disease. The history and physical examination suggest the symptomatic form, often called Henoch's purpura. While at present the clinical classification of purpura is most unsatisfactory, the current ideas can be grouped under two schools of thought. There are those who would place all purpuras in one group with the idea that the various clinical forms may be considered variants of the same hemorrhagic diathesis. Others make a strict differentiation on the basis of whether the platelets are reduced or not and group the cases with purpura under two main divisions, the thrombopenic forms and the symptomatic varieties.

The question of classification is not an altogether academic one, as it involves a conception on which treatment and prognosis are based. The controversy is whether the vessel permeability is a primary factor underlying all types of purpura or whether it is the basic mechanism in the symptomatic form only. In the thrombopenic group a disturbance of the intravascular clotting mechanism is also present, which contributes to more severe and chronic hemorrhage. Whatever conception is chosen, it is established that purpura does occur without a reduction of platelets but that the symptom is more constant and severe when the platelets are reduced below the level of 50,000. Hence the treatment and prognosis are both influenced to some extent, depending on the reduction of platelets to a critical level. As a rule thrombopenia is not present in cases presenting abdominal symptoms and purpura, although there are exceptions. The clinical picture is often like the case cited and may simulate an acute appendicitis or intussusception. While such cases should not be confused with these clinical conditions and needless operation be done, it is well to bear in mind that surgical intervention is sometimes indicated in the true Henoch type of purpura. Actual intussusception has been known to occur if the hemorrhage is of sufficient amount to produce a large amount of blood in the wall of the intestine. Under this circumstance the part of bowel affected becomes motionless and the increased peristalsis in the adjacent part of the bowel may drive it into the paralyzed part, producing a true intussusception. Other cases are on record in which operation revealed a true hemorrhagic appendix in Henoch's purpura. Therefore, while conservative treatment should usually be chosen in cases of this type, the possibilities should be borne

in mind. Apparently the pathogenesis in Henoch's type of purpura is an alteration in capillary permeability, which may manifest itself clinically in all stages from a transudative process to a truly hemorrhagic manifestation.

The etiologic factors responsible for this derangement in the capillary mechanism may be (1) food allergy, (2) anaphylatoxin associated with a bacterial protein, or (3) histamine-like substances derived from the proteins in the gastro-intestinal tract. The action of these substances may be directly on the capillary endothelium or on the vasomotor mechanism. According to this etiologic conception, treatment may be suggested along several lines; but it is well to remember that a large number of these cases undergo spontaneous remissions. Calcium preparations, by mouth or intramuscularly, are the most popular symptomatic remedies. However, in every case of Henoch's purpura the question of allergy and infection should be seriously considered and appropriately treated if present. If the attacks of purpura are repeated often, the patient may require treatment for anemia caused by chronic loss of blood. In cases in which thrombopenia is definite and persistent, blood transfusion is indicated. The prognosis is usually good if there are no acute abdominal and renal complications.

TOXICITY OF CHLORPICRINE GAS

To the Editor:—I would like information regarding the toxicity of chlorpicrine gas. It is manufactured by the Innis Speiden Company, New York. It is used as a weevil exterminator in a grain elevator. I have a patient who has had two attacks of pyelitis recently apparently caused by this gas. Please omit name. M.D., Ohio.

ANSWER.—Chlorpicrine is trichlornitromethane or nitrochloroform, having the formula CCl_3NO_2. This substance has been much used as a war gas of the lachrimatory variety. Exposure promptly leads to severe frontal headache. Animal experiments carried out by the Chemical Warfare Service of this country failed to reveal consistent evidences of gross pathologic changes resulting from the action of chlorpicrine. The toxicity of chloroform (trichlormethane) is well known in relation to anesthesia. As an industrial agent trichlormethane is rated as possessing a toxicity at least double that of carbon tetrachloride, which is regarded as a highly dangerous industrial substance. The introduction of the "nitro" radical into the chemical structure is believed definitely to enhance the toxicity. This general group of chemicals may be credited with the capacity of producing renal lesions and damage to the respiratory and gastro-intestinal tracts and the liver. If the two attacks of pyelitis mentioned in the query are the sole manifestations of the action of chlorpicrine, a cause and effect relationship may be doubted. Contrariwise, if various other evidences of damage to other body organs may be established, a possible cause of the pyelitis may reside in the chlorpicrine. Under any circumstances, exposure to any considerable concentration of chlorpicrine is to be associated with apprehension.

DERMATITIS AND BRUCELLA ABORTUS

To the Editor:—I am wondering whether the following condition is common: About three weeks ago a farmer, aged 39, came to me complaining of an eruption on both arms. The lesions were found to be papulovesicular in character, surrounded by a moderate amount of edema and erythema. The lesions were bilateral in distribution and were scattered over the entire arm from the wrist to about 3 inches above the elbow. There was no history of allergic tendencies or of the previous occurrence of the present condition. Two days before he had tried to deliver manually an apparently healthy cow, which had been in labor for only ten hours. Both arms were inserted to about the level of the lesions on the upper arms. I advised hot moist dressings and an antipruritic for the burning and itching. Several days ago he came in again. My directions had been only partially carried out. He stated that each lesion eventually became like a "boil" and had to be opened and drained before healing. At that time the lesions were practically all healed but presented the picture of a healed furuncle. What was the cause or nature of the condition? Is this condition common? What is the best line of treatment? It took two weeks to clear up under my care. Please omit name. M.D., Colorado.

ANSWER.—Dermatitis of the arms is common in veterinarians engaged in the treatment of cows infected with Brucella abortus. This is a common disease of cattle. Although the cow treated by the patient in this case seemed healthy, it is known that many cows are carriers of this infection, showing no evidence of disease.

The dermatitis is due to sensitization of the skin to the infected vaginal secretion, not an infection of the human skin. The subject was discussed by L. F. Weber (Brucella Dermatitis, *Arch. Dermat. & Syph.* **26**:422 [Sept.] 1932). A query on this subject was answered in THE JOURNAL, January 6, page 69. As suggested in the answer mentioned, long rubber gloves should be worn in all obstetric work by one sensitized to this form of irritation. After careful removal of the gloves, to avoid contact with the contaminated exterior, a thorough washing with soap and hot water is indicated.

The treatment given the case in question was proper, except that cool wet dressings are usually more soothing to a dermatitis than hot applications. Furuncles are apt to occur after any such dermatitis, because the inflammation has lessened the skin resistance. The doctor is to be congratulated on having cleared it up in two weeks. That was a prompt result. Cool wet dressings of aluminum acetate solution diluted with fifteen parts of cool boiled water or a saturated solution of boric acid, followed by calamine lotion containing 0.5 per cent of phenol and of glycerin is a good plan of treatment. The cool wet dressings should be applied for half an hour at a time, several times a day.

AMAUROTIC FAMILY IDIOCY

To the Editor:—Kindly tell me the most prominent symptoms of amaurotic family idiocy in a boy of 2 years. What are the causative factors? Could smoking or drinking by the mother during gestation produce such an effect? Kindly omit name. M.D., Illinois.

ANSWER.—Amaurotic family idiocy of the infantile type is also known as Tay-Sachs disease. It usually begins in the first six months of life. The first symptoms noted are listlessness, inactivity, and indifference of the infant to its surroundings. Until the time when these symptoms are first manifested, the infant has developed in a normal manner, and with the onset of the disease a gradual retardation in development occurs and the infant begins to lose ability to perform voluntary activity, such as sitting up and rolling over, which it formerly possessed. The baby becomes apathetic, does not smile, and gradually fails to respond to the spoken word as it formerly did. The muscles of the limbs become flaccid, and the infant loses the ability to sit upright and to hold its head up. This flaccid state gradually changes to a spastic condition.

With these changes in the general condition, visual changes occurr. The infant loses the power to notice objects held before its eyes, does not follow light as formerly, and finally may become totally blind. On the other hand, the acoustic sense becomes highly acute. The slightest noise will prove startling. As the infant lies quietly in bed or on the examining table, a sudden sound, such as the closing of a door or the dropping of a metallic instrument on the floor, will cause it to start violently and jump. This manifestation has been termed hyperacusis. As the condition progresses, this starting at noises may finally be the cause of the convulsions noted in such infants. These may be tonic or clonic and last for a period of several minutes.

The infant gradually becomes emaciated with wasted and paralyzed musculature, loses its ability to suck and swallow, and finally dies of inanition. The duration of the disease is from one and a half to two years after the occurrence of the first symptoms.

The reflexes are usually exaggerated and a positive Babinski sign may often be elicited. The pupillary reflex may be sluggish and the optic disk may show some atrophy. The characteristic eye sign described by Warren Tay will be found in an examination of the fundi, where a cherry red spot surrounded by a white patch is noted in the region of the macula in each eye.

The symptoms already noted, gradually increasing weakness and apathy, the hyperacusis and convulsions, with inanition, culminating in idiocy, together with the loss of vision, optic atrophy and pathognomonic cherry red spot of the macula, should make the diagnosis unmistakable.

The disease is supposed to occur exclusively in infants of Jewish parentage of Russian or Polish origin. This racial occurrence is the only definite etiologic factor known for the disease, and even this is not certain, as its occurrence has been noted in infants of other races.

Syphilis, alcoholism, infection, nicotine poisoning or tuberculosis seem to play no part in the cause. The outcome seems to be invariably fatal.

In recent years, amaurotic family idiocy has been linked with diseases of lipoid metabolism, such as lipoid histiocytosis, or Niemann-Pick disease. Some writers have also included Gaucher's disease and essential xanthomatosis in this group. All these conditions are disturbances of lipoid metabolism, but sufficient evidence has not yet made it possible to group them together on a common etiologic basis.

A late infantile type of amaurotic family idiocy is said to begin at the age of 4 or 6 and take a course somewhat similar to the infantile type, without the macular change.

DESENSITIZATION TO MILK ALLERGY IN A CHILD

To the Editor:—A child, aged 3, suffers from asthma due to an allergic response to milk, as shown by a skin reaction and by freedom from attacks while on a milk-free diet, with return on the reintroduction of milk. Is it possible to prepare milk to be used for desensitization, in the office, with ordinary equipment and from ordinary milk? If so, please give particulars. I should like to avoid the expense of the usual commercial desensitization set if this can be done without danger to the patient. Please omit name and initials.

M.D., Maine.

ANSWER.—The hypodermic desensitization or injection treatment for foods is seldom necessary, since it can be usually accomplished more successfully and with much less expense at home, by daily ingestion of that food. In instances in which home cooperation is not of the best, such a procedure might be advisable. Hypodermic desensitization to foods has its greatest usefulness in those instances in which the contact with the food material is by inhalation rather than by ingestion, as, for example, in bakers sensitive to wheat.

The procedure of choice in oral desensitization is to administer orally small amounts of the guilty food. Daily doses of the food are taken. The first portions are very small. In the case of milk, one drop of milk in a glass of water would be sufficient to start with, then two drops, and so on. The rate of increase varies with the degree of sensitiveness of the individual. By diligent application it is often possible to attain a practical tolerance in from six to twelve months; that is, by the end of the period the patient may be able to take a glass of milk without the production of symptoms.

It would be rather difficult to prepare milk for hypodermic administration in the office, to compare with a commercial desensitization set. First of all, the cream must be removed. Then the casein, precipitated by the addition of rennin, must be filtered out through a Berkefeld filter. The filtrate must then be sterilized by boiling and diluted with phenolized salt solution (physiologic solution of sodium chloride to which 0.4 per cent phenol has been added) into solution of 1:10,000, 1:1,000, 1:500 and 1:100. These liquid extracts should be kept cool, preferably in the refrigerator. Warmth and high dilutions tend to cause rapid decrease in the potency. The office preparations of these allergens by one not experienced at such work would be somewhat risky.

TREATMENT OF WARTS ON FACE

To the Editor:—A Negro, aged 40, for the past six months has had a wartlike eruption on the face. The lesions are typically filiform and wartlike in character, millet seed in size, dry, and uniformly distributed over the bearded area of the face and chin. There is no itching, no exudation, no ulceration and no evidence of inflammation. The patient has a positive history for syphilis with treatment fifteen years ago. The Wassermann reaction at the present time is negative. He presents no clinical evidence of syphilis. What is your opinion as to the diagnosis, prognosis and therapy in this case? Please omit address.

M.D., New York.

ANSWER.—Two possibilities are suggested. If the lesions are soft, they are pendulous soft fibromas, often seen but seldom so numerous, and easily eradicated by clipping them close to the skin surface and touching the spot with a small cautery point at red heat.

If the little tumors are horny, there should be many still smaller flat topped ones among the filiform ones. The diagnosis of common verruca seems highly probable. In this case shaving should be interdicted, for it will propagate warts faster than any treatment can eradicate them. An antiseptic lotion, such as corrosive mercuric chloride 1:1,000 in 50 per cent alcohol, should be used after clipping the beard with scissors, with care to avoid the warts.

Touching each wart several times a day with Vleminckx's solution, liquor calcis sulphuratae, or 10 per cent salicylic acid in alcohol may in time cure them.

They can be curetted, each base dried by pressure with a sponge saturated with the antiseptic solution mentioned, preferably in this case with alcohol, then each base touched with phenol, tincture of iodine or trichloracetic acid. Each wart can be desiccated with the high frequency current with care to avoid scarring. G. C. Andrews (Diseases of the Skin, Philadelphia and London, W. B. Saunders Company, 1930, p. 877) recommends removal of the burned tissue after desiccation and half an erythema dose (150 roentgens) of unfiltered roentgen rays to the area.

Without the desiccation, roentgen rays in moderate dosage—less than necessary to produce erythema—will sometimes cure them.

Mercury compounds by mouth or intramuscular injection, bismuth compounds intramuscularly, and various forms of arsphenamine have all been used for the treatment of multiple warts with more or less success.

The psychic treatment of warts has been attracting much attention of late years, fostered chiefly by Bloch, who succeeded in curing a large percentage of cases by suggestion. A recent contribution to this time honored method is that of H. V. Allington (Sulpharsphenamine in the Treatment of Warts, *Arch. Dermat. & Syph.* **29**:687 [May] 1934), who tested the value of sulpharsphenamine in the treatment of warts—a subject of controversy for years. Allington treated a series of fifty-five cases of warts with sulpharsphenamine injected intramuscularly, and a parallel control series of sixty-one with distilled water colored to match the sulpharsphenamine solution and injected in the same way. The injections of water cured nearly as large a percentage of cases as the sulpharsphenamine.

Another interesting contribution along this line is the work of F. E. Cormia (Autolysate Therapy for Verruca Vulgaris, *Arch. Dermat. & Syph.* **30**:44 [July] 1934), who tested the method of Biberstein, who successfully treated warts with an autolysate of each individuals own warts. Cormia, in trying this method, intentionally discouraged his patients to reduce the probability of obtaining a cure by suggestion and in twelve cases treated succeeded in curing only two.

Just how much treatment of warts is chemotherapy, electrotherapy, or actinotherapy and how much psychotherapy is difficult to say; but it is evident that much more of it than the physician suspects is psychotherapy.

ALOPECIA AREATA

To the Editor:—A woman, aged 30, has been suffering for several years from extreme loss of hair. At times her hair almost completely comes out. Then a new growth appears. At present there is a bald area about 6 inches in circumference. She has no children and the past history is negative in regard to this disease. She has been treated by at least a half dozen skin specialists with no results whatever. Naturally she is greatly alarmed, in view of the fact that no doctor as yet has been able to prescribe or give her any relief. I have given her arsphenamine, treated the condition locally with various prescriptions, tried thyroid extract and pituitary extract, and administered various tonics internally. On examination the heart, lungs, kidneys, blood pressure and blood are all normal. If possible, could you suggest from the symptoms anything that would be wise to give her? Kindly omit name.

M.D., Georgia.

ANSWER.—The patient is suffering from alopecia areata. The history of recurring attacks of loss of hair is quite characteristic of this disease, especially the fact that at present there is one bald area 6 inches in circumference. The exact cause of alopecia areata is not known. Certain cases are due to severe nervous shock or psychic disturbance. In some instances the disease seems to be linked up with metabolic disturbances or with foci of infection. Many times the physician is unable to find any explanation for the trouble. Despite the comment as to lack of results from treatment by skin specialists, the best advice is reference to a specialist in this particular line of work, for even the men best versed in dermatology may have difficulty in coping with such a trouble. In the way of treatment one should, of course, endeavor to remove any possible factor of causation; for example, impacted or infected teeth or infected tonsils. Local treatment consists in the use of stimulating measures, for example, the use of stronger ammonia water rubbed well into the areas twice a day, or the use of a 1 per cent pilocarpine lotion made up in equal parts of rose water and perfumed spirit, N. F. Quartz lamp therapy up to the point of erythema doses is also of value in this condition. In a case in which there is a history of frequent recurrences of the disease, the prognosis is guarded.

DIFFERENTIAL DIAGNOSIS OF COLDNESS OF FEET WITH SORENESS

To the Editor:—A man, aged 26, weighing 145 pounds (66 Kg.), complains of soreness and aching in the soles of the feet, up the calves of the legs and across the back. His feet are almost always cold, winter and summer. The blood pressure is normal. The Wassermann test is negative. It affects him mostly when he is standing and the feet are cold from the ankles down. There is no discoloration of the toes, alternating hyperemia or anemia. He feels tired. His feet sweat a good deal. There is no pain in his legs at night.

JOHN L. HEALY, M.D., Newport, R. I.

ANSWER.—The symptoms suggest the following possible diagnoses:

1. Some infectious process in the nerves, muscles or joints, such as early arthritis, or fibrositis secondary to some infection. A roentgenogram of the feet should be made for possible demonstration of arthritic changes in the small bones. Tenderness along the nerve trunks, or local tenderness in the muscles, should be sought. The treatment for this would be

baking and massage, salicylates internally, and removal of any foci of infection. Autogenous vaccine might be tried.

2. Structural defects in the feet. Occasionally this type of pain, bilaterally, is seen with marked grades of flatfoot. Therapeutic tests can be carried out by placing a transverse bar on the sole of the shoe. If no relief is obtained from this treatment, the condition is not present.

3. One of the various neuroses that accompany conditions of general fatigue, which express themselves in the extremities. The treatment of these states of local fatigue is based on measures to improve the general health, such as vacations and relief from environmental strains. Many of these patients are constitutionally inadequate. The diagnosis should be made only after careful examination and absence of organic changes.

4. A condition, observed in young men with cold, clammy feet associated with pain on standing, which for want of a better term can be called "vasospastic painful feet." This condition, however, has never been described as a clinical entity. Usually the distress is relieved when the extremities have been warm for a time. A diagnostic test can be made by placing the feet in warm water, or under a radiant heater, to see whether any relief is obtained. This condition may overlap a little with that described first, for the pain probably has a twofold basis, an infectious process, such as early arthritis, and intermittent ischemia of the tissues. The description of the complaint suggests this diagnosis. The injection of foreign protein intravenously (small doses of Lederle's triple typhoid vaccine in doses of from 5 to 10 million every three or four days) sufficient to produce one or two degrees of fever may give considerable relief. In addition, physical therapy and contrast baths may help.

These provisional diagnoses are made on the assumption that pulsations in the lower extremities are normal and that there is no gross neurologic condition present that could cause distress in the extremities.

REDUCTION OF LOCAL OBESITY

To the Editor:—A patient of mine, an unmarried woman aged 26, presents as a chief complaint extreme obesity of the legs from the knees to the ankles. Her past history is negative; she never had lymphangitis or phlebitis. Her general health is good, and the rest of the body has normal proportions. She has had these very fat legs ever since she can remember, say as a child of 7 or 8, but they became more conspicuous as she grew up, and are very embarrassing to her. Is there anything that can be done about this disfiguring localized obesity? Please omit name.

M.D., New York.

ANSWER.—The reduction of local accumulations of fat is a difficult and uncertain matter. General weight reduction accompanied by vigorous exercise of the affected parts is sometimes successful. Dancing and rope skipping would be the exercises of choice in this case. A brisk rubdown, with massage of the affected parts after exercise periods, might also help. If the patient is not overweight, the reduction diet should be intermittent so as not to cause too much general weight loss. The exercises, however, should be maintained indefinitely, since there appears to be an increased tendency for the deposition of fat around well developed muscles, once the exercise of those muscles ceases.

HEARING DEVICES IN OTOSCLEROSIS

To the Editor:—I have under my care a woman, single, aged 20. Ten years ago she noticed that she was having difficulty in hearing. At that time her physician advised removal of tonsils and adenoids, which was done by a competent specialist. The deafness has progressively grown worse. She also has developed a constant roaring and at times thumping in the entire head. Politzerization of the tubes has not improved either the deafness or the tinnitus. Physical examination is entirely negative. Aural examination is likewise negative. The patient can hear through bone conduction. All other ear tests are negative. Blood and urine examinations are negative. There is no history of scarlet fever or other infectious diseases and the patient has not taken any medicines. Her habits are normal in all respects. Could you advise me what can be tried to help this young woman? She refuses to use any of the standard appliances for the deaf or hard of hearing because they can be seen. Is there any apparatus that can be worn without detection? If you can suggest anything, I would greatly appreciate it. Please omit name.

M.D., New York.

ANSWER.—So far as one may judge from the history submitted, the case is probably one of otosclerosis (or spongification), as evidenced by the facts that there is no change in the drum membrane, that inflation does not improve the hearing, that the patient is a female, that the disease started early in life, that there is tinnitus and that the bone conduction is good. In this condition the bone conduction is usually prolonged as compared with a normal individual when tested in the usual environment. For all cases in which there is good bone conduction, those hearing devices which have an attachment that can be placed and held firmly against the mastoid process are of considerable assistance. Several of the electrical hearing devices now on the market have this bone conduction attachment, among them being the appliances manufactured by the Sonotone Company and the Western Electric Company. Women can easily wear this head appliance so that it is not visible, because the band that holds it in contact with the skull may be hidden under the hair.

HEADACHES AT MENSTRUAL PERIODS

To the Editor:—I have a patient, aged 41, who complains of severe headaches and vomiting every week end. They are always worse during the menstrual period. While having these attacks she is nervous. Her menstrual periods are regular but scanty at times and at other times normal in the amount of blood. She has a few cramps, but they are not marked. She has had similar attacks before but not so often; they have been usual at every menstrual period since she started to menstruate, at the age of 12 years, at which time she was in bed for a week. She has two children, one 9 years of age and the other 13 months. I did not take care of her during her first pregnancy but I did during the second and she had no symptoms of headaches or vomiting during the nine months or for four months after delivery, at which time they started again and have gradually become worse. What line of treatment would you recommend? Please omit name.

M.D., Illinois.

ANSWER.—Headaches associated with vomiting, occurring at the menstrual period, may or may not be due to hormone disturbances. Allergic and psychogenic factors may likewise be important. The fact that the patient has attacks every week suggests also that fatigue may be a contributing cause. The regularity of exacerbations of the headache at the menstrual periods does not necessarily point to hormone unbalance as the cause; a psychogenic origin arising in the prepuberal period is more than likely. Headaches with vomiting due to allergy would not usually follow a weekly rhythm.

Treatment should first consist in psychotherapy along psychoanalytic lines. If psychoanalysis is not feasible, at least a psychologic analysis should be made to discover if possible a reason for revolt against menstruation. Perhaps a rational explanation of the physiology of reproduction given to the patient will suffice.

RESECTION OF NASAL SEPTUM

To the Editor:—I would appreciate any information you can give me as to the advisability of having a resection of a deviated nasal septum in a case of chronic sinusitis; also the consensus as to the benefits that are derived from such a procedure. Will such an operation reduce the frequency and the severity of an attack of rhinitis and sinusitis? Please omit name.

M.D., Connecticut.

ANSWER.—If a deviation of the nasal septum is such as to interfere with drainage from the nasal accessory sinuses, the submucous resection is advisable. In some of these cases a sharp deviation presses the middle turbinate close to the nasal lateral wall, causing marked obstruction to drainage by way of the middle meatus. It is then best to infract the middle turbinate toward the median line and provide more space in the region of the middle meatus.

Occasionally, marked thickening of the posterior portion of the septum may interfere with drainage from the posterior ethmoidal cells, and in such case submucous resection would also be of considerable aid in facilitating drainage. Even with increased air space it is doubtful whether one may say that the straightening of the nasal septum will reduce the frequency or severity of rhinitis or sinusitis; but, when the infection of the sinus does occur, the improvement of space for drainage will often aid in shortening the attack either spontaneously or as a result of treatment.

EPILEPSY

To the Editor:—A man, aged 36, tells me that as a baby, almost from the day he was born until he was about 8 years of age, he had epileptic fits almost every day. These stopped at this age and have never recurred. He is a fine specimen of manhood of foreign birth; his nervous system is apparently all right and his physical condition excellent. To his knowledge this is not a family characteristic. He has asked me what are the chances of his children being epileptic, should he marry. Is he ever likely to have this condition return? Please omit name.

M.D., New York.

ANSWER.—Epileptiform seizures in infancy are most frequently due to some acquired cerebral damage and are not of the same nature as cryptogenic (idiopathic) epilepsy. It is in the latter that hereditary influences play an important part. The history given in this case suggests that the man will remain free from attacks and, since the lesion was probably acquired, that there is no likelihood of a condition of epilepsy being transmitted to his children.

CREDÉ METHOD AND VISION

To the Editor:—Does the use of the old Credé treatment of a baby's eyes at birth (2 per cent silver nitrate, immediately neutralized by physiologic solution of sodium chloride) ever cause permanent impairment of vision? Is there such a thing as an idiosyncrasy to silver nitrate used in eyes in 2 per cent strength? At about what age does a child use his eyes for vision? At about what age are the eyes fully developed? Kindly omit name.

M.D., Illinois.

ANSWER.—The old Credé method of using 2 per cent (or preferably 1 per cent) silver nitrate in the eyes at birth will never cause permanent impairment of vision, provided the proper technic is followed. In the cases in which damage has been reported, either the silver solution was too strong or the neutralization was postponed too long. As far as is known, there is no idiosyncrasy to 2 per cent silver nitrate. A rather severe reaction may follow the use of a solution of that strength if there has been failure to neutralize completely all the caustic agent. A child has vision at birth, but central vision, as known to the adult eye, is absent until differentiation of the macula has taken place. This starts between the fourth and sixth weeks post partum and is usually complete by the third month. The eyes are fully developed between the eighth and tenth years of life.

REMOVAL OF TATTOOING

To the Editor:—I would like to have your opinion as to the therapeutic value of the following prescription for the removal of tattooing, taken from Fitch's Medical Formulary: First the skin is vigorously rubbed until the outer epidermis comes off; then a paste of quicklime, just slacked, to which pulverized phosphorus (two tablespoonfuls to a pint) is added and thoroughly mixed, is applied to the tattooed surface and held by a bandage, which is taken off two days later. The crust is left to dry and then fall off itself; in about fifteen days. A second application should be made; a third is rarely necessary. Thus treated, the tattooing disappears completely without the least scar.

JOHN S. HATTERY, M.D., Mansfield, Ohio.

ANSWER.—There are many methods of removing tattoo marks, some of them fairly satisfactory, others less so. The claim for any one of them that "the tattooing disappears completely without the least scar" appears to those experienced in the use of the older methods somewhat exaggerated. If this claim is warranted, all other methods are due to be forgotten.

No opinion of any method for the removal of tattooing is of value except that acquired by actual experience. In the use of any method, the area treated at any one sitting should be not over 2 cm. in diameter. This is particularly true in experimental work. Most methods of removal require local anesthesia. Powdered phosphorus is red phosphorus, which is nontoxic.

THERAPEUTICS OF GARLIC

To the Editor:—Recently two patients, one with cholecystitis and the other with arterial hypertension, have been extolling the therapeutic virtues of garlic. The vegetable has been prescribed uncooked and in considerable quantities. Are the beneficial results attributed to its ingestion due to some vitamin or are they purely psychologic in nature? I have not seen any literature on the subject.

H. B. HANSON, M.D., Fort Brown, Texas.

ANSWER.—Externally, garlic may be used as a rubefacient. Internally it is useful as a carminative—in flatulence—and thus gives symptomatic relief to a patient with cholecystitis. Taken in liberal doses it has a tendency to dilate the blood vessels of the skin ordinarily one hour after its ingestion, an effect that lasts for several hours and may possibly be of use in arterial hypertension. Its psychic qualities—the offensive odor it imparts to the breath and the sweat—are probably the chief cause for its limited use.

CHRONIC GONORRHEA IN WOMEN

To the Editor:—I have fallen heir to two cases of chronic gonorrheal salpingitis in young, unmarried girls. Hot permanganate douches three times a day and triweekly injections of metaphen into the cervix have been used. Both cases now show only pus cells in repeated smears. Am I dealing now with a secondary staphylococcic invasion? There are no cervical lesions. The discharge is mucoid and in one case absent except immediately following menstruation. What is the chance for complete cure medically? What are the prerequisites for dismissal? When may these girls marry? What about diathermy in these cases? Please omit name.

M.D., Ohio.

ANSWER.—From the description of these two cases it would appear to be reasonable to assume that the chances for complete cure are excellent. Before the patients are discharged as cured, or before permission to marry is given, the following program should be carried out: The urethra, Skene's glands and Bartholin's glands should be carefully examined for the presence of pus and, if present, this should be examined for the presence or absence of gonococci. After three negative slides have been obtained from each of these sources, preferably one week apart, cultures should be made on special culture mediums to demonstrate the presence or absence of gonococci. Whether a secondary invasion due to the staphylococcus is present can be determined by microscopic examination of smears. It does not appear that diathermy is indicated in these two cases.

TOXICITY OF CARAWAY SEEDS

To the Editor:—I have a patient, aged 28, who has the habit of eating a 10 cent box of caraway seeds each day and recently has been complaining of headaches, loss of weight and general nervousness. Will you please tell me the effect of caraway seeds on the human body, provided the woman has been using this preparation for the past four years? She eats the seeds.

RAYMOND H. LEU, M.D., New Martinsville, W. Va.

ANSWER.—Oil of caraway is known to produce headache, dizziness and delirium in acute poisoning, and it is not unreasonable to suppose that the symptoms complained of may have something to do with this most unusual practice. The chronic ingestion of excessive quantities of substances containing volatile oil, such as caraway seed, is likely to affect unfavorably the parenchyma of the liver and kidney. A study of the functional condition of these organs should be made in this case.

KALA-AZAR

To the Editor:—Please advise whether it would be possible or probable for a child about 3 years of age to have a case of kala-azar who had never been out of the state of Texas and had no contact with any one that could have had this disease. Would it be possible that it could be transmitted by toys after they had come through the regular channels of trade? Please omit name.

M.D., Texas.

ANSWER.—In the present conception of the etiology of the disease, this would be considered impossible. All evidence points to an insect vector for kala-azar, most probably a species of the sand fly Phlebotomus. It is inconceivable that such insects could be transported by toys. In addition, all known facts of the epidemiology of the disease are opposed to this method of transmission or to spontaneous cases occurring in the United States.

DIFFERENTIAL DIAGNOSIS IN ARTHRITIS

To the Editor:—I have a patient, aged 37, who has a chronic arthritis of three years' duration. He has taken salicylates and cinchophen without relief. At the age of 16 he had gonorrhea, which cleared up promptly under treatment and has not recurred. He has a boy 8 years of age, and his wife has shown no symptoms. The arthritis is a migratory one and has affected his fingers, hips, shoulders and knees. The question in my mind is whether this is an infectious arthritis or whether it might be gonorrheal. Would a complement fixation test help at this time?

FREDERICK B. DEVITT, M.D., Oneonta, N. Y.

ANSWER.—This is a case of rheumatic arthritis and should be considered infectious. It might be due to the gonococcus. The complement fixation test may or may not be of value as an etiologically diagnostic agent. It is true that in many of these cases the original gonococcic infection sensitizes the patient to an infection that may occur later.

SOLUTION OF EPHEDRINE

To the Editor:—What is the best method of dissolving ephedrine alkaloid in light mineral oil to make a 1 per cent solution? It seems not to be readily dissolved. Should a preservative be added and if so, what? Is it true that the alkaloid is much more effective for local shrinking action than the salt? Please omit name.

M.D., Connecticut.

ANSWER.—One Gm. of ephedrine dissolves readily in 100 cc. of liquid petrolatum by the aid of water bath heat. To obtain a clear solution the ephedrine must be dry or the solution filtered through dry filter paper. Some ephedrine (base) on the American market contains water of hydration or "sensible moisture." This will not dissolve in liquid petrolatum but requires addition of other solvents or filtering out of the water.

Preservatives that do not change the nature of the substance are not known. The solution should be well protected from light and heat, and it should be prepared in small enough volume so that it will be used up in about three months.

Ephedrine salts are not soluble in liquid petrolatum; therefore they would not be available for preparing oil sprays. The aqueous solution of the salt will have a prompter but more transient effect than the oil solution of the alkaloid. Usually the latter effect is desired. There have been introduced other vasoconstrictors, as Synephrine Tartrate, Neosynephrine and Benzedrine; the latter is volatile and may be used in a nonliquid type of inhaler (inhalator tubes).

LEUKORRHEA IN PREGNANCY

To the Editor:—I have observed quite a few cases of an irritating leukorrhea producing inguinal dermatitis and excoriations in several of my prenatal cases. This leukorrhea has not appeared until the last two months of pregnancy and there has been no evidence of any infection, gonorrheal or otherwise, prior to the last two months. I have talked with a number of my colleagues, who state that they are familiar with the condition but are also in the dark as to the best mode of treatment. The data that I have given are limited, but is there any physiologic or etiologic explanation for this annoying condition? Since one does not ordinarily uses douches the last two months of pregnancy, what would be the best mode of treatment? Please withhold name.

M.D., California.

ANSWER.—Pressure and congestion are, of course, the chief factor in predisposing to discomforting leukorrhea during the late months of pregnancy. Less well recognized, an increased sugar content in the urine and in the serum of the genital secretions at this time is also important in producing low grade vulvovaginal infection.

The carbohydrate intake of these patients should be restricted. Although local treatment of any sort is advocated with hesitancy in the late months of pregnancy, dry cleansing of the lower part of the genital canal and gentle use of astringent topical applications may be resorted to in selected cases. Aseptic technic is imperative.

SILICA AS A HAZARD IN SOAP FACTORIES

To the Editor:—Will you please let me know if the hazard of silicosis exists among workers in various soap factories?

MOSES J. STONE, M.D., Boston.

ANSWER.—Silicosis is a hazard in those soap factories using silica (SiO_2) in the manufacture of abrasive soaps. Others may make use of silicates for abrasive purposes and the possibility of silicatosis exists. As a filler for some soaps, sodium silicate is employed in liquid form. This use of a silicate is dissimilar to the employment of such others as pumice for detergent purposes. Cases of silicosis originating in soap factories are well known. It has been stated that the coexistence of silica and alkali dusts in soap plants is conducive to an accelerated form of silicosis to which the term "acute silicosis" has been applied. This accelerating or aggravating action of alkalis is not definitely proved, but in any event certain cases of silicosis among soap workers rapidly have progressed to disability and to death.

BELCHING WITH AEROPHAGIA

To the Editor:—I have a patient, aged 34, a white woman, who has had severe attacks of belching of almost a hiccup-like nature for the past year. They occur several times a day, with no relation to meals or diet. Belladonna, alkalis and barbituric acid sedatives have no effect. Physical examination is not remarkable except for a slight systolic murmur and for sacculation under the eyes. Urinalysis is negative. There is no pain and the patient sleeps well. Could you suggest the possible diagnosis and treatment? Please omit name.

M.D., Alabama.

ANSWER.—The information submitted in this question is too meager to furnish any definite idea as to the possible cause. The fact that the patient has indulged in this form of belching for years suggests that it is functional in character. However, it may be of reflex origin from some disturbance in the biliary or gastro-intestinal tract. Some form of psychotherapy might be suggested after a complete investigation has been made and the patient assured of the absence of organic trouble. One might let the patient observe in the course of the fluoroscopic examination of the stomach that she actually swallows air every time that she belches. This kind of evidence of the absence of gas formation in the stomach has at times striking suggestive therapeutic effect.

FUNCTION OF FETAL KIDNEYS

To the Editor:—In THE JOURNAL, July 14, page 126, is a query regarding the fetal kidneys and their function. I should like to mention the results of a necropsy at the Greenpoint Hospital in September 1933. A new-born male child presented a completely imperforate urethra. The bladder showed muscular hypertrophy and submucosal hemorrhages. Both ureters were markedly torsed and showed a segmental dilatation, which at some points almost resulted in stricture. Both kidneys were polycystic. The bladder contained urine, and the renal cysts contained a urinous fluid. About 500 cc. of fluid was free in the abdomen. There was no evidence of hepatic abnormality. There was no cardiac dilatation. It can be presumed here that fetal secretion of urine was present. With complete closure of the urethra, the muscle wall of the bladder hypertrophied in a vain attempt to expel its contents and even causing submucosal hemorrhages. Back pressure could effect the dilatation and torsion of the ureters and may have been an etiologic factor in the production of bilateral polycystic kidneys. Whether hypertension was present or not is not known.

SAMUEL WALDMAN, M.D., Brooklyn.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written (Group B candidates).* The examination will be held in various centers throughout the country, Oct. 1. *Oral (Group A and Group B candidates).* San Antonio, Texas, Nov. 13-16. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B candidates).* The examination will be held in various cities of the United States and Canada, Nov. 3. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: San Antonio, Texas, Nov. 13; Philadelphia, June 10. *Application must be filed at least sixty days prior to date of examination.* Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: San Antonio, Texas, Nov. 16. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARIZONA: Phoenix, Oct. 2-3. Sec., Dr. J. H. Patterson, 320 Security Bldg., Phoenix.

CALIFORNIA: Sacramento, Oct. 15-18. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, Oct. 2. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Oct. 13. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

GEORGIA: Atlanta, Oct. 9-10. Joint Secretary, State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 2. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, Oct. 16-18. Superintendent of Registration, Department of Registration and Education, Mr. Eugene R. Schwartz, Springfield.

IOWA: Des Moines, Oct. 8-10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MICHIGAN: Lansing, Oct. 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 2-3. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Oct. 16-18. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MISSOURI: Kansas City, Oct. 24. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 2. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: *Basic Science.* Omaha, Oct. 2-3. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW HAMPSHIRE: Concord, Sept. 13-14. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW JERSEY: Trenton, Oct. 16-17. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 8-9. Sec., Dr. P. G. Cornish Jr., 221 W. Central Ave., Albuquerque.

NEW YORK: Albany, Buffalo, Syracuse and New York, Sept. 24-27. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Sept. 11-12. Sec., Dr. J. M. Byrum, Mammoth Building, Shawnee.

RHODE ISLAND: Providence, Oct. 4-5. Dir., Public Health Commission, Dr. Lester A. Round, 319 State Office Bldg., Providence.

WISCONSIN: *Medical. Reciprocity.* Green Bay, Sept. 11. Sec., Dr. Robert E. Flynn, 401 Main St., La Crosse. *Basic Science.* Madison, Sept. 22. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

WYOMING: Cheyenne, Oct. 1. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Florida June Examination

Dr. William M. Rowlett, secretary, State Board of Medical Examiners, reports the examination held in Jacksonville, June 11-12, 1934. An average of 75 per cent was required to pass. Seventy-three candidates were examined, 66 of whom passed and 7 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1924)	90.1
Atlanta Medical College		(1915)	86.8
Emory University School of Medicine	(1929) 80.2, (1930) 82.3, (1931) 84.7, 88.2, (1932) 82, 83.2, 85.2, 85.2, 86.8, (1933) 85.1, 85.4, 86.1, (1934) 86.2, 87.7	(1926)	84.7,
University of Georgia School of Medicine	(1933) 86.9, (1934) 81.6, 82.5, 82.9	(1932)	81.6,
Loyola University School of Medicine		(1918)	82.8
Northwestern University Medical School	(1927) 79.9, (1930) 81.6	(1898)	90.1,
Rush Medical College		(1931) 91.8, (1934)	91.9
University of Kansas School of Medicine		(1925)	85.2
University of Louisville Medical Department		(1914)	75.8
University of Louisville School of Medicine		(1933)	84.6
Tulane University of Louisiana School of Medicine	83.7, 85.8, 86.6, 87, 88.9	(1934)	79.8,
Harvard University Medical School		(1932)	92.5
Tufts College Medical School		(1931)	87.2
Columbia University College of Physicians and Surgeons		(1901) 76.7, (1906) 86.9, (1908)	82.1 76.9
Syracuse University College of Medicine		(1911)	

University of Buffalo School of Medicine	(1929)	85.8
Duke University School of Medicine	(1933)	89.7
North Carolina Medical College	(1908)	82.4
University of Cincinnati College of Medicine	(1911) (1930) 89.9	83.9,
Western Reserve University School of Medicine	(1933)	90.6
Medico-Chirurgical College of Philadelphia	(1909)	82.4
University of Pennsylvania Department of Medicine	(1905)	80.6
University of Pennsylvania School of Medicine	(1933)	83.4
Meharry Medical College	(1933)	85.1
University of Nashville Medical Department	(1905)	76.5
University of Tennessee College of Medicine	(1917) (1932) 78, 81.7, 82.2, (1933) 80.7	76.5,
University of Tennessee Medical Department	(1909)	80.4
Vanderbilt University School of Medicine	(1917) 78.6, (1926)	89.1
University of Vermont College of Medicine	(1932)	88.9
Medical College of Virginia	(1931) 81.5, (1932)	86.6
University of Virginia Department of Medicine	(1896)	84.4

FAILED

School	Year Grad.	Per Cent
Birmingham Medical College, Alabama	(1911)	72.4
Columbian University Medical Department, D. C.	(1901)	71.3
Atlanta College of Physicians and Surgeons	(1913)	73
Atlanta Medical College	(1897)	72.4
Long Island College Hospital	(1908)	69.9
Medical College of Ohio	(1897)	68.7
Jefferson Medical College of Philadelphia	(1880)	47.9

Vermont June Examination

Dr. W. Scott Nay, secretary, Board of Medical Registration, reports the written examination held in Burlington, June 20-22, 1934. The examination covered 12 subjects and included 90 questions. An average of 75 per cent was required to pass. Twenty-two candidates were examined, all of whom passed. The following schools were represented:

PASSED

School	Year Grad.	Per Cent
Tufts College Medical School	(1933)	86.6
University of Vermont College of Medicine	(1933) 76.5, 80.1, 81.2, 84.7, (1934) 79.6,* 80,* 82.5,* 83.7,* 83.9,* 84.1,* 85,* 85.2,* 85.3,* 85.5,* 86.3,* 86.8,* 86.9,* 89,* 89.3*	75.1,
McGill University Faculty of Medicine	(1933)	80.1

* License withheld pending completion of internship.

Book Notices

Brucellosis: A Public Health Problem. By Ward Giltner. Agricultural Experiment Station, Michigan State College of Agriculture and Applied Science. Section of Bacteriology. Memoir No. 1. Paper. Pp. 118. East Lansing, Mich, 1934.

The author has successfully achieved his purpose in conducting this study; namely, to provide practitioners of human and veterinary medicine with a broad but concise statement of the present knowledge of the Brucella (Alcaligenes) diseases of animals and man. Due importance is also given to the problem as it relates to the owners of susceptible livestock and to those who are concerned with industries that deal in animals and animal products. The author possesses qualifications for a synthetic statement of the problem. Under his direction, workers at Michigan State College have engaged for many years in a comprehensive study of Brucella infections. Giltner states that brucellosis (brucelliasis) is certainly comparable in importance to bovine tuberculosis as a disease of cattle. The comparative importance of the two diseases of bovine origin is, however, directly influenced by the measures that have been taken to control the one or the other disease in cattle or otherwise to prevent their dissemination. In those states in which vigorous and successful campaigns against bovine tuberculosis have been carried out, the disease has been largely eliminated among other animals and human beings. In these areas, however, many cases of undulant fever of bovine origin have developed. Brucella abortus infection is most common in those countries in which there is a highly developed dairy cattle industry; it is transmitted to man by the ingestion of raw milk and its products, and by direct contacts with infected cattle. Brucella suis infection is confined almost exclusively to hog raising sections; it is transmitted to man by contacts, especially in hog packing plants, in the butcher shop, on the farm, or as a result of handling or eating infective pork. Brucella melitensis infection is most frequent in regions where the milch goat is a common source of milk and its products; man acquires the disease from the ingestion of raw milk and unpasteurized dairy products, and from contact with affected goats, goat tissues or excretions. The prevention of brucellosis in man is essentially a problem in animal hygiene; the animal sources must be brought under control. Attempts are being made to eradicate the disease in cattle by blood testing and isolation or disposal of all reactors, disinfection of the premises and replenishing of the herd with nonreactors or by building up the herd from its own progeny. While this plan has great promise, it has been applied to an insignificantly small percentage of the dairy herds of this country. While experience with bovine tuberculosis and other diseases of cattle indicates that governmental financial aid and coercion make possible the practical eradication of cattle disease over considerable areas, Giltner does not consider it wise at this time to undertake such an extensive program with brucellosis of cattle, goats and swine. There is some evidence that preventive vaccination with Huddleson's avirulent live culture vaccine of Brucella abortus may be of some value as a supplement to the segregation plan. Pending the achievement of a brucellosis-free animal population or an acceptable immunizing agent, human beings must be protected from milk-borne infection by legally enforced or voluntary pasteurization of market milk and the milk to be used for dairy manufactures. An educational campaign designed to prepare producers, consumers and health enforcement officers should pave the way for protective legal measures.

One inconsistent statement is found. At one point the author says: "At present there are those who would minimize the importance of consuming infective dairy products and magnify the importance of animal contacts. There is nothing to be gained by taking either stand." On another page appears this statement: "At the present time there is sufficient information to indicate that Bang's organisms in milk are rarely responsible for producing undulant fever in human beings." On several other pages, convincing evidence appears that ingestion of raw milk containing Brucella organisms is a common source of infection. This contradiction does not detract, however, from the value of this monograph to the physician, public health worker, veterinarian or dairyman.

Les traitements de l'hypertension artérielle. Par Maurice Roch, professeur de clinique médicale à la Faculté de Genève. Paper. Price, 20 francs. Pp. 148. Paris: Masson & Cie, 1934.

This small, highly condensed monograph is one of a series on medical and surgical practice. It is clearly and concisely written and briefly covers the field designated by the title. All the more recent and important of the almost innumerable therapeutic measures in hypertensive disease are mentioned and an attempt is made to evaluate their worth. The critical discussion, however, is not as broad or as inclusive as one might wish. The plan and style are logical and simple. The work is an excellent summary of existing methods of therapy; there is perhaps a natural overemphasis of the choline derivatives and surgical sympathectomy. This is not surprising in view of the many French studies concerning these two lines of therapeutic attack. The bibliography is not voluminous but appears to be well chosen and contains more references to the American literature than is usual with work from the continent. The discussion is limited strictly to the problems and methods of therapy in hypertensive arterial disease and its commoner complications. This is unfortunate, as logical curative therapy must be based on an understanding of etiology and pathogenesis and therefore any truly complete discussion of therapy requires due emphasis of these. As a brief outline of present-day methods the volume is to be commended. It will have a definite place in the literature of hypertensive disease.

Pathologie buccale: Péri-buccale et d'origine buccale. Par les Drs Rousseau-Decelle et Raison. La pratique stomatologique. Publiée sous la direction du Dr Chompret et autres. Cloth. Price, 85 francs. Pp. 576, with 196 illustrations. Paris: Masson & Cie, 1933.

The text is divided into two parts. The first is concerned with diseases primary in the mouth and the second with the manifestations in the mouth of diseases of other parts of the body. It is an encyclopedic presentation of stomatology and not strictly a pathology. For example, the parasitology, etiology, pathologic anatomy, symptomatology, prognosis and treatment of actinomycosis occupy ten pages; the symptomatology alone covers four and one-half pages. Such subjects as syphilis and tuberculosis are discussed in great detail, although on

the whole most diseases are treated quite briefly. In the section on deficiency diseases some hesitation is manifested in ascribing the etiology of rickets to a deficiency of vitamin D, and Mellanby is placed as an American worker. Eighty-six of the illustrations are excellent drawings and the remainder are poor to fair reproductions of photographs. In the United States this book has some value for reference purposes.

Developmental Psychology. An Introduction to the Study of Human Behavior. By Florence L. Goodenough, Professor, Institute of Child Welfare, University of Minnesota. The Century Psychology Series. Edited by Richard M. Elliott. Cloth. Price, $3. Pp. 619, with 81 illustrations. New York & London: D. Appleton-Century Company, 1934.

One logical way to teach psychology to beginners would be by showing the development of traits, mental functions and abilities with the increase in age of an individual. The present work is an admirable attempt to do this by showing ontogenically the mental capacity of the human child, the adolescent, and the mature and senescent adult. A well selected synthesis of facts about heredity and embryology, with emphasis on the nervous system, precedes chapters dealing with the infant before speech begins and after its onset. Succeeding chapters describe in chronological order the social, emotional and other characteristics of the mental life of the child through prekindergarten, kindergarten, school child and college student ages. Daily the genetic psychologists of the country are pouring out more experimental results, so that selection of these in such a way as to show how they fit together to form living personalities is no mean task. Goodenough has done it in a way that will give the beginning student an idea of modern psychology, and the present volume will quite likely supersede the stodgy structuralistic textbooks that are still being used in many institutions. It gives a decidedly better understanding of the mechanics of behavior than earlier textbooks. To the pediatrician and pediopsychiatrist it gives for the first time concise, systematic and annotated information about the normal development of gross functions (such as color vision or introversion) to be expected at definite periods of the life cycle. To these specialists it gives also an idea of some of the more useful psychologic technics and the aims of modern psychology. However, the chapters on mental disease and old age are inadequate and unnecessary and might well be disregarded.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern: Röntgenologische Skelettstudien an menschlichen Zwillingen und Mehrlingen: Ein Beitrag zu den Problemen der Konstitution und der Phylogenese. Von Franz Buschke. Mit Geleitwort von H. R. Schinz. Mit Unterstützung der Stiftung für wissenschaftliche Forschung an der Universität Zürich. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband XLVI. Herausgegeben von Prof. Dr. Grashey. Paper. Price, 25 marks. Pp. 150, with 55 illustrations. Leipzig: Georg Thieme, 1934.

H. R. Schinz, professor of roentgenology in Zurich, in a prefatory word points out that the study of genetics is yet in its infancy and that an intensive study of human heredity did not begin until after the World War. He points out further that the study of twins is the most certain method for determining some of the relations between inherited and acquired characteristics.

Buschke, the author, says that the skeleton is in many respects a mirror by means of which the biologic changes in the organism can be read. The roentgen-morphologic analysis of the skeleton, especially of the growing skeleton, gives perhaps more exact information about the variations in the function of the endocrine organs than can be obtained in any other way. The author's purpose is to determine to what extent hereditary factors influence the development and individual form of the skeletal system. He presents the results of roentgenologic study of the skeleton in twenty-five pairs of identical twins, eighteen pairs of two-egg twins of the same sex, seven pairs of two-egg twins of opposite sex, four sets of triplets, and one set of quadruplets. In form and structure of the skeleton there are marked concordances, even to the smallest detail, in the identical twins, and corresponding discordances in the two-egg twins. The discordances in the two-egg twins are less marked, however, than in two persons of the same age and sex who are not related. The order of ossification is in general constant. A distinction must be noted between centers which ossify in regular order and those which do not ossify in the same order in all persons. The latter centers usually ossify in the same order in siblings, but there may be marked discordances, even in the identical twins. The time of ossification shows marked similarity in identical twins, dissimilarity in the two-egg twins. Special peculiarities of ossification appear to be concordant in identical twins and discordant in two-egg twins, though the author admits that the material is too meager for final conclusions.

The conclusions drawn from the investigation are discussed, and the results placed, as far as possible, in their proper relation to genetics. The possibility of evaluating the results with regard to the problem of evolution is indicated. The observations are clearly presented in fifty detailed tables accompanied by numerous roentgenograms. There are also six summary tables. Table 1 gives an outline of the whole investigation, table 2 a summary of the observations in identical twins, table 3 a summary of the observations in two-egg twins; tables 4, 5 and 6 indicate the order of ossification of the bones of the hand, elbow and foot in the various cases. Before discussing his own work, the author discusses briefly what is known about the biology of twins and the literature about the influence of heredity and environment on the morphogenesis of the skeleton. He also gives an excellent though brief bibliography on heredity, research in twins and multiplets, and bone development.

Researches on Tropical Typhus: A Study of the Bacteriology, Serology and Epidemiology of the Disease. By Ludwik Anigstein, M.D., Ph.D., Parasitologist to the State Institute of Hygiene, Warsaw, Poland. Studies from the Institute for Medical Research, Federated Malay States, No. 22. Cloth. Pp. 186, with illustrations. Kuala Lumpur: Kyle, Palmer & Company, Ltd., 1933.

The typhus-like disease first described under the name tropical typhus by Fletcher and Lesslar (*Bull. Inst. M. Res. F. M. S.*, 1925, No. 2) has been the subject of the extensive investigations reported here in monographic form. Special attention has been paid to the symptomatology and Weil-Felix reaction in ninety cases of tropical typhus from the Oil Palm Estate (Selangor Province, Malaya), to the study of the experimental disease in guinea-pigs, rabbits and rats, to the bacteriologic studies and to the epidemiology of the disease, with particular reference to the rural and urban types.

The incubation period varied from eleven to twenty-one days. The disease was characterized by a rather sharp onset, a fever reaching 102 F. on the third or fourth day and increasing to 104 F. the next few days, followed by rapid defervescence, and inconstant rash which frequently attacked the face, symptoms of dysfunction of the central nervous system, enlargement of the lymphatic glands, a lymphocytosis of from 40 to 60 per cent with the absence of eosinophilic cells, and a death rate of about 14 per cent. The disease appeared to be particularly more virulent for Europeans than for natives.

Weil-Felix reaction carried out with the two Proteus organisms OX_{19} and OXK showed that the reaction with OX_{19} was just as specific for the urban (W) type of tropical typhus as for typhus exanthematicus, while a similar part was played by reactions with OXK for the rural (K or scrub) type of the disease. Patients' serum (of W type) when absorbed with living suspensions of the W strain had both the H and O agglutinins removed by the absorption. As regards thermolability, the behavior of the agglutinins in tropical typhus patients may be compared, in general, with that of typhus fever.

Guinea-pigs were found to have a marked resistance to experimental infection with tropical typhus, only 11 per cent showing a febrile reaction. A redness and swelling of the scrotum was noticed in 6 per cent of the guinea-pigs inoculated. Necropsies of the animals that reacted to inoculation disclosed normal or moderately enlarged spleens, enlarged suprarenal glands, hemorrhagic foci in the lungs, and congested meninges. Hemorrhagic gelatinous exudates in the polar fat of the testes, often with marked injection of the tunica vaginalis, were found in most of the male animals. Large numbers of micro-organisms corresponding to different phases of the rickettsiae that have been described from guinea-pigs with infections with Mexican typhus were observed in the smears from the tunica vaginalis. Thirty-five per cent of the rats inoculated were found to be susceptible and X_{19} agglutinins were formed more readily in them than in the rabbit. The Weil-Felix reaction in rats and rabbits was found to be a reliable indicator of a specific infection.

Cultures were made from the blood of human cases on diluted Hottinger broth. After one week's incubation subcultures were made on a blood-ascitic-agar medium, even though no visible growth could be seen on the primary cultures. A total of seventy-six strains of organisms were thus obtained from the blood and infected tissues of human patients and of infected laboratory animals and also from lice fed on patients. The organisms were highly pleomorphic, ranging from the classic rickettsial form to fusiform and "diphtheroid" rods and coccobacilli with bipolar staining. All were gram negative. Biochemically these strains fell into three groups, one of which contained strains showing the characteristics of the B. proteus X group. Although most of the strains showed no serologic relationships to B. proteus, they produced a positive Weil-Felix reaction in inoculated animals. Twelve of the strains, however, were serologically related to B. proteus X. The virulence of the cultures for laboratory animals was highly variable in degree, the more virulent strains producing symptoms and pathologic changes similar to those produced by the original virus. These more virulent strains consisted usually of minute coccal forms resembling rickettsiae. Micro-organisms of this type were also found to develop in lice fed on tropical typhus patients, and when inoculated into a rat they produced a positive Weil-Felix reaction to the XK strain. The transmission is not thought, however, to be effected through body or head lice.

The finding of a positive Weil-Felix reaction in 10 per cent of the wild rats indicated that they serve as animal reservoirs of scrub typhus. Since *Trombicula deliensis* is known to be a vector of tsutsugamushi in Japan, and since these mites were found to be common on rats in Malaya, it seems quite probable that some Trombidiid mite may serve as the vector of scrub (or the rural type of tropical) typhus. The author inclines toward the belief that, in spite of the epidemiologic and serologic differences between the K and W types of the disease, the causative organism is probably the same species in all cases, the differences possibly being explicable because of different vectors.

Promising results were obtained with a mixed prophylactic vaccine prepared from formolized cultures that had been isolated from infected rats.

Die Tastmassage: Ihre Anwendung und Wirkungsweise bei den Weichteilrheumatismen. Von Dr. Walter Ruhmann, Specialarzt für innere Krankheiten und Nervenleiden, Berlin. Paper. Price, 1.20 marks. Pp. 30, with 10 illustrations. Leipzig: Fischers medizinische Buchhandlung, 1934.

Soft tissue rheumatism manifests itself in localized hardening of muscles or skin mainly. It may also be perineural and periarticular. Such hardenings can be found by the palpating finger tip on proper training and can often be influenced by proper local massage.

Increased blood supply and influence on tissue metabolism are invoked to explain, somewhat verbosely, the good influence on pain and the solution of the hardening when this occurs.

Psychology and Psychotherapy. By William Brown, D.M., D.Sc., F.R.C.P., Wilde Reader in Mental Philosophy in the University of Oxford. Third edition. Cloth. Price, $4.75. Pp. 252, with illustrations. Baltimore: William Wood & Company, 1934.

A writer with the equipment with which Dr. Brown is endowed (for he is author of at least one fine monograph on psychology and is trained as a physician) should be expected to make a real contribution to the literature of psychotherapy. Before stating that he does, one must point out that the present work is uneven in quality and that the chapters on peace and war and on pyschical research are irrelevant. Nevertheless, a modern book in which all the various schools of psychotherapy are summarized and their applications shown has been badly needed. In this volume are discussed the underlying theories of psychoanalysis and hypnosis and their technics. The therapeutic uses of personal influence and faith therapy are seldom discussed, so that their inclusion adds to the value of this book. There is a section on juvenile delinquency which expresses a very different opinion from that generally held in this country, for the rôle of the parent is ignored. Adlerian psychology is not emphasized. Case histories are included, chiefly in the chapter on war neuroses. All in all, one must admit that the book is a step in the right direction; but its contents are too poorly organized for a real textbook on psychotherapeutics. For those primarily interested in this field it does offer stimulation.

Investigations Into the Cause of Mental Deficiency. By H. O. Wildenskov, M.D., Medical Superintendent of the Keller Institution for Mental Defectives, Brejning, Denmark. (Translation from Danish by Hans Andersen.) Paper. Pp. 113. Copenhagen: Levin & Munksgaard; London: Oxford University Press, 1934.

This is a study of fifty propositions from the Keller institution for the purpose of determining whether the type of material used in studies of the feebleminded has any bearing on the results. The author believes that higher grades of deficiency are more likely to be of hereditary origin than lower, so that studies made on defectives in which the subjects cover the whole range will give conflicting results. He reviews the literature covering the hereditary phases of the problem and cites various cases of his own of acquired oligophrenia. The study compares a high grade with a low grade group of defectives in regard to siblings and other relatives. Wildenskov concludes that there is a difference in the results of his observations in two groups significant enough so as to justify future studies on the subject of mental deficiency based on groups that are unified as to intelligence levels. The subjects of the present study, however, are insufficient in number and he does not show the range of intelligence within his group—two deficiencies that make the conclusion questionable. A good bibliography is appended.

Medicolegal

Privileged Communications: Implied Waiver of Privilege.—In December 1928, before issuing four policies providing certain benefits in the event of disability, the defendant insurance company required the plaintiff to undergo a physical examination. During that examination he, in answer to a question, stated that he had never consulted a physician for or suffered from any ailment of the lungs. Some three and one-half years later the plaintiff sued the insurance company, to recover disability benefits, alleging that he was disabled by pulmonary tuberculosis. The company, in defending, claimed that the plaintiff had answered falsely the question noted above, propounded to him during the medical examination, in that he previously had had tuberculosis and had undergone medical treatment for it. At the trial, a physician, who had examined the plaintiff for the first time on the day of the trial, testified on his behalf that he was then suffering from moderately advanced active pulmonary tuberculosis which, in the opinion of the witness, had existed since Jan. 1, 1932, seven months before the trial. Two physicians, called by the insurance company, each testified that prior to the date of plaintiff's examination for insurance he had attended the plaintiff in a professional capacity on several occasions and that on those occasions the plaintiff was sick, but neither of these physicians was permitted to state the ailment from which the plaintiff was then suffering. Judgment was given for the plaintiff, and the defendant appealed to the Court of Appeals of New York.

At common law, said the Court of Appeals, a physician could be required on a trial to disclose information which he acquired in attending and treating a patient. A statute, however, changes this rule in the state of New York, where a physician is not allowed to disclose any information which he has acquired in attending a patient in a professional capacity and which was necessary to enable him to act in that capacity, unless the patient personally, in open court, waives the privilege of secrecy. The purpose of this statute is to protect the relationship of physician and patient by preventing physicians from disclosing information that might result in humiliation, embarrassment or disgrace to patients. The question here is whether the plaintiff, by calling a physician and thereby disclosing the fact that he was suffering from tuberculosis at the time of the trial, waived his privilege of nondisclosure, so that the testimony of physicians who had treated him was admissible on behalf of the insurer to show that he was suffering from the same disease prior to his examination for insurance.

In *Capron* v. *Douglass*, 193 N. Y. 11, 85 N. E. 827, the plaintiff testified as to his physical condition and without objection permitted a physician who had operated on him to describe what he found during that operation. When the defendant called a physician who had assisted at the operation, his testimony was excluded as privileged. On appeal, however, the Court of Appeals of New York held that if the testimony of one physician is received without objection, the privilege is waived and the testimony of another physician, who was present and assisted in an operation, when offered by the opposing party, is competent and should be received. The court did not restrict its decision to the facts of that case but expressly stated that when a plaintiff, by testimony given by others with his knowledge and consent, has exposed his physical condition to the public, the door is open for the defendant to offer the testimony of physicians on that subject. In this case, when the plaintiff called a physician to testify that he had been suffering from tuberculosis for seven months he exposed his condition to the public and disclosed the secret which the statute was enacted to protect. By his own act he removed the prohibition of the statute and waived on the trial the protection that it afforded him.

The plaintiff urged that even if the testimony of the physicians called by the defendant, as to the plaintiff's physical condition during the seven months preceding the trial, was admissible, testimony by them as to his condition more than three years before the trial, when the application for insurance was signed, was not admissible. Such a contention, said the court, overlooks or ignores the purpose of the statute. There would be no more humiliation, mortification or disgrace in having the fact disclosed that the plaintiff had pulmonary tuberculosis more than three years and seven months before the trial than in the fact that he had that disease for seven months before the trial. If his condition could not be shown as it existed three years before the trial, could it be shown as it existed three months or three weeks before? The disease is a progressive one. The plaintiff may or may not have suffered from it when he signed the application. That was the issue in the case, and the insurance company was entitled to have the testimony of the physicians who had examined and treated the plaintiff before the application was signed received in evidence.

The judgment of the lower court in favor of the plaintiff was reversed and a new trial granted.—*Steinberg v. New York Life Ins. Co. (N. Y.), 188 N. E. 152.*

Liability of Druggist for Mistake in Compounding Prescription.—A physician prescribed for the plaintiff a 1 per cent solution of gentian violet, the written prescription directing the use of the solution as a mouth wash. The physician, however, orally directed the plaintiff to use the solution in her eyes also. The drug company to which the plaintiff took the prescription gave her, not a 1 per cent solution of gentian violet, but a 3 per cent solution, and this, when used as an eyewash, caused the plaintiff to lose her eyesight. She sued the drug company. The trial court sustained the demurrer interposed by the drug company. The plaintiff then appealed to the court of appeals of Georgia, division No. 1.

The defendant drug company apparently contended that it was not liable, because the prescription indicated on its face that it was to be used as a mouth wash; that the use of the 3 per cent solution erroneously dispensed would have been safe for that purpose, and that the drug company could not anticipate that the solution would be used as an eye wash also. The company apparently relied on the rule that a person charged with negligence is liable only for those injuries which a prudent man, in the exercise of care, could have reasonably foreseen or expected as the natural and probable consequence of his act. But, said the court, it is not necessary, after negligence has been proved, to prove also that the consequences of that negligence could have been foreseen by the defendant. It is sufficient if the injuries are the natural result of the negligence, such injuries as are likely under ordinary circumstances to ensue from it. A druggist, the court pointed out, impliedly warrants that the article that he sells is the article called for and is liable for injury that results from his giving the purchaser a different article. In the opinion of the court, the proximate and legal cause of the plaintiff's injury, under the allegations of the petition, was a matter for the jury to determine. The trial court erred in sustaining the defendant's demurrer. The judgment of the trial court was accordingly reversed.—*Watkins v. Jacobs Pharmacy Co. (Ga.), 171 S. E. 830.*

Accident Insurance: Suturing of Wound a Part of Surgical Operation or of Medical Treatment.—The defendant association issued a policy of insurance providing certain benefits if the insured should die from external, violent and accidental means. No benefits were to be paid, however, for any injury caused wholly or in part, directly or indirectly, by surgical operations or medical treatment or for death resulting from any such cause. The insured died from tetanus, following a herniotomy. His widow, the beneficiary under the policy, sued the insurer to recover the benefits named in the policy. The parties to the suit agreed that the insured was subjected to a herniotomy, that the herniotomy was successful and in no way caused or contributed to the death of the insured, which was due to tetanus, and that the operating physician used a kangaroo tendon suture in closing a part of the opening in the patient's abdominal wall, which suture, without the knowledge of the operating physician, contained tetanus germs, which infected the insured and caused his death.

The plaintiff contended that since, according to the agreed facts, the operation for hernia was successful and in no way caused or contributed to the death of the insured, the cause of death was wholly separate and apart from the operation. We think, however, said the Supreme Judicial Court of Massachusetts, Suffolk, that "tying up and closing a portion of the opening in the abdominal cavity" was a necessary part of the surgical operation or, if not connected with that operation, was a necessary part of the medical treatment. Recovery of benefits under the policy was therefore denied and judgment entered in favor of the insurer.—*Pitman v. Commercial Travellers' Eastern Acc. Ass'n. (Mass.), 188 N. E. 241.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Sept. 9-14. Dr. William P. Wherry, 107 South 17th Street, Omaha, Executive Secretary.

American College of Surgeons, Boston, Oct. 15-19. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Congress of Physical Therapy, Philadelphia, Sept. 10-13. Dr. Nathan H. Polmer, 921 Canal Street, New Orleans, Secretary.

American Hospital Association, Philadelphia, Sept. 24-28. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Roentgen Ray Society, Pittsburgh, Sept. 25-28. Dr. Eugene P. Pendergrass, 3400 Spruce Street, Philadelphia, Secretary.

Associated Anesthetists of the United States and Canada, Boston, Oct. 15-19. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 8-10. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 19-22. Mr. Harvey T. Sethman, 537 Republic Bldg., Denver, Executive Secretary.

Delaware, Medical Society of, Dover, Oct. 9-10. Dr. William H. Speer, 917 Washington Street, Wilmington, Secretary.

Indiana State Medical Association, Indianapolis, Oct. 9-11. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary.

Kansas City Southwest Clinical Society, Kansas City, Mo., Oct. 1-4. Dr. Hugh Wilkinson, 750 Minnesota Avenue, Kansas City, Kan., Secretary.

Kentucky State Medical Association, Harlan, Oct. 1-4. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Battle Creek, Sept. 12-14. Dr. F. C. Warnshuis, 313 Metz Bldg., Grand Rapids, Secretary.

Nevada State Medical Association, Reno, Sept. 21-22. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.

New England Surgical Society, Burlington, Vt., Sept. 28-29. Dr. J. M. Birnie, 14 Chestnut Street, Springfield, Mass., Secretary.

Northern Minnesota Medical Association, Brainerd, Sept. 10-11. Dr. Oscar O. Larsen, Detroit Lakes, Secretary.

Ohio State Medical Association, Columbus, Oct. 4-6. Mr. Don K. Martin, 1005 Hartman Theatre Building, Columbus, Secretary.

Omaha Mid-West Clinical Society, Omaha, Oct. 29-Nov. 2. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.

Oregon State Medical Society, Corvallis, Sept. 27-29. Dr. L. Howard Smith, Medical Arts Building, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Wilkes-Barre, Oct. 1-4. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Virginia, Medical Society of, Alexandria, Oct. 9-11. Miss Agnes V. Edwards, 1200 East Clay Street, Richmond, Secretary.

Washington State Medical Association, Spokane, Sept. 10-13. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Green Bay, Sept. 12-14. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

28: 1-160 (July) 1934

Urologic Complications Following Pelvic Irradiation. H. S. Everett, Baltimore.—p. 1.
Value of Hormone Study in Diagnosis of Chorionepithelioma. R. A. Kimbrough Jr., Philadelphia.—p. 12.
Cancer of the Cervical Stump Following Subtotal Hysterectomy. E. von Graff, Iowa City.—p. 18.
Premature Separation of the Placenta, with Especial Reference to the Etiology of Placental Lesions. T. L. Montgomery, Philadelphia.—p. 33.
Squamous Cell Epitheliomas in Dermoid Cysts of the Ovary. V. S. Counseller and W. L. A. Wellbrock, Rochester, Minn.—p. 40.
*"Menopausal Symptoms" and Ovarian Function Following Hysterectomy: Clinical and Hormone Study: Preliminary Report. A. B. Tamis, New York.—p. 48.
*Acute Yellow Atrophy of the Liver in Pregnancy. H. J. Stander and J. F. Cadden, New York.—p. 61.
Distribution of Congenital Malformations in the United States. W. F. Petersen, Chicago.—p. 70.
Fetal Death from Placenta Circumvallata. J. E. Hobbs and P. R. Rollins, St. Louis.—p. 78.
Effects of Chloral Hydrate on Maternal and Fetal Organisms from Standpoint of Experimental Study. R. E. Campbell, Madison, Wis.—p. 83.
Blood in the Cerebrospinal Fluid of the New-Born: Its Relation to Prognosis. L. H. Smith, Portland, Ore.—p. 89.
Analysis of Eighty-Four Cases of Placenta Praevia. J. Binder, Jersey City, N. J.—p. 92.
*Sterilization of the Female by Coagulation of the Uterine Cornu: Preliminary Report. M. N. Hyams, New York.—p. 96.
Obstetric Analgesia: Comparative Study of Sodium Amytal, Sodium Amytal and Scopolamine, Gwathmey (Ether in Oil), and Avertin. I. Daichman, G. Kornfeld and M. M. Shir, Brooklyn.—p. 101.
Use of Dial in Labor: Preliminary Report. C. H. Birnberg and S. H. Livingston, Brooklyn.—p. 107.
One Hundred and Thirty-Four Consecutive Cesarean Sections Without Maternal Mortality. W. F. Seeley, Detroit.—p. 115.
Malignancy in Cervical Polyps. Faith S. Fetterman, Philadelphia.—p. 120.
Diagnostic Value of Posterior Colpotomy or Needle Puncture in Ectopic Pregnancy. H. S. Bush, New York.—p. 123.
Twin Abdominal Pregnancy. C. B. Lull and J. B. Bernstine, Philadelphia.—p. 126.
Uterus Didelphys with Full Term Pregnancy in One Uterus and Fibroids in the Other. M. J. Abramson, Los Angeles.—p. 129.
Endometrial Theory of Ectopic Pregnancy and Intraligamentous Pregnancy at Six Months. S. B. Schenck and J. M. Frankel, Brooklyn.—p. 133.
Successful Removal of a Seventy-Five-Pound Ovarian Cyst. R. J. Crossen and S. D. Soule, St. Louis.—p. 137.

Menopausal Symptoms Following Hysterectomy.—Tamis determined the ovarian function of eighteen hysterectomized women by means of the extraction, from the urine, of estrogenic substance and anterior pituitary-like hormone. The absence of estrogenic substance and the persistent presence of the anterior pituitary-like hormone indicates ovarian failure. The presence of estrogenic substance indicates ovarian follicular activity. The duration of ovarian function did not bear any relation to the amount of gonadal tissue conserved. Ovarian activity persisted longer in the women less than 35 years of age at the time of operation than in the older group. Conservation of the ovaries in the women less than 35 years of age tended to retard the onset of the "flushes" to a greater degree than in the older group. In both groups, when the flushes did occur, they lasted longer than when they appeared in the bilaterally oophorectomized women. Determination of the ovarian function preoperatively in amenorrheic cases in which this activity is questionable may aid the surgeon in deciding beforehand the problem of gonadal conservation in the treatment of fibromyoma of the uterus. No direct relationship could be demonstrated between follicle hormone production alone and the onset and severity of the vasomotor disturbances of the menopause. Whatever influence the ovary exerts over these symptoms is due to some other mechanism. The author suggests that the gynecologist not only attempt to conserve the ovaries when treating uterine fibroids but also to save as much of the uterine mucosa as may be feasible. It is the latter procedure that is probably of greatest value to the patient in the prevention of the appearance of menopausal symptoms.

Acute Yellow Atrophy of the Liver in Pregnancy.—Stander and Cadden report a case of acute yellow atrophy, occurring in a woman at term. Initial symptoms of vomiting, dizziness and headache appeared four days before admission to the hospital and seven days before death. A great deal of stress should be laid on such symptoms occurring near term, and if a satisfactory explanation cannot be found the patient should be admitted to a hospital for careful study. When the diagnosis of acute yellow atrophy is made, the therapy of choice is massive doses of dextrose. Should acidosis develop, alkali therapy is indicated. In the authors' case, dextrose therapy was undoubtedly started too late in the course of the disease. The blood and urine chemical observations in this patient were consistent with injury to the liver and similar to those seen in partial removal of the liver in dogs. The pathologic observations showed advanced fatty degeneration throughout the entire lobule. This fatty degenerative change extended from the central vein to the portal spaces.

Sterilization by Coagulation of the Uterine Cornu.—According to Hyams, sterilization by coagulating the uterine ends of the fallopian tubes is simple and can be carried out in the office. Anesthesia or hospitalization is unnecessary, as the instrument can be introduced with little or no pain or trauma. No after-treatment is needed and the results are effective. The author does not advise sterilization by this procedure during a menstrual period. If the uterine cavity is distorted by submucous fibroids or by the pressure of uterine tumors, the openings of the fallopian tubes cannot be reached. In the presence of an acute or subacute inflammation of the pelvic organs, polyps, hydrosalpinx, hematosalpinx or pyosalpingitis, treatment by this method is contraindicated.

American Journal of Orthopsychiatry, Menasha, Wis.

4: 323-432 (July) 1934

Demonstration as a Method of Education in Training for Psychiatric Social Work. G. H. Reeve, Cleveland.—p. 359.
Some Basic Concepts Regarding Field Work Training for Psychiatric Social Work. Alice D. Taggart, New York.—p. 365.
Direct Treatment Work with Children. H. S. Lippman, St. Paul.—p. 374.
Delinquency in Cleveland and Cuyahoga County During the Depression Period: Part I. M. E. Kirkpatrick, Cleveland.—p. 382.
Psychodynamics of Maternal Rejection. H. W. Newell, Baltimore.—p. 387.
Work with Psychobiologic Children's Personality Difficulties. L. Kanner, Baltimore.—p. 402.
Hypothyroidism and Cretinism in Childhood: III. Mental Development. I. P. Bronstein and A. W. Brown, Chicago.—p. 413.

American Journal of Pathology, Boston

10: 443-568 (July) 1934

Tumors and Tumor-Like Conditions of Lymphocyte, Myelocyte, Erythrocyte and Reticulum Cell. G. R. Callender, San Antonio, Texas.—p. 443.
Studies on Myocardial Aschoff Body: I. Descriptive Classification of Lesions. L. Gross and J. C. Ehrlich, New York.—p. 467.
*Id.: II. Life Cycle, Sites of Predilection and Relation to Clinical Course of Rheumatic Fever. L. Gross and J. C. Ehrlich, New York.—p. 489.
*Disappearance of Glomeruli in Chronic Kidney Disease. A. R. Moritz and J. M. Hayman Jr., Cleveland.—p. 505.
Actinomycosis of Tubes and Ovaries: Report of Case. V. H. Cornell, Washington, D. C.—p. 519.
*Extragenital Chorionepithelioma in a Male. A. R. Kantrowitz, New York.—p. 531.
Multiple Hemangioblastomas of the Spinal Cord with Syringomyelia: Case of Lindau's Disease. A. Wolf and S. L. Wilens, New York.—p. 545.

Life Cycle, Sites of Predilection and Relation of Aschoff Body in Rheumatic Fever.—Gross and Ehrlich base their study of the life cycle of the myocardial Aschoff body on an examination of the clinical records and necropsy material from seventy cases that presented Aschoff bodies in the myocardium. It appears that these specific lesions pass through three stages in development. The earliest phases,

represented by small cell coronal and reticular Aschoff bodies, have been found to occur up to the fourth week after the onset of the illness. The middle phases, represented by large cell coronal, syncytial coronal, mosaic and large irregular cell polarized Aschoff bodies, have been found to occur between the fourth and thirteenth weeks after the onset of the illness. The late phases are represented by polarized Aschoff bodies that occur from the ninth to the sixteenth week after the onset of the illness, and subsequently by fibrillar Aschoff bodies that occur after the thirteenth week of the illness. The earliest type of specific lesions are apparently influenced in their response by the reactivity of the tissue, depending on whether there has or has not been a previous attack of rheumatic fever, and also by the state of the collagen present in the interstices between the myocardial bundles.

Disappearance of Glomeruli in Chronic Kidney Disease.—Moritz and Hayman show that both in chronic renal disease in man and in experimentally produced glomerular injury in rabbits a large proportion of the glomeruli in a given kidney may disappear, leaving no recognizable trace. In the rabbits, in which the disease was not progressive, there was not even any condensation of the interstitial connective tissue to indicate the loss of parenchyma. In man the chronic progressive nature of the disease made interstitial fibrosis a constant observation, even though the recognizable glomerular scars were not numerous enough to account for more than a fraction of the obliterated glomeruli. The reduction of the number of glomeruli was not paralleled by a corresponding reduction from the expected normal weight of the kidney. If so large a proportion of the glomeruli in chronic renal disease can disappear without trace, the final histologic examination of the kidney may give less information concerning the pathogenesis and severity of the disease than is commonly thought. If a kidney, having originally an expected normal number of about one million glomeruli, can lose as many as three fourths of these without leaving recognizable scars of those lost, it is not fair to assume that the changes affecting the remaining one fourth were necessarily the same as those that occurred in the glomeruli that have disappeared. The final pathologic diagnosis of the kidney is frequently made on a basis of the preponderant change seen. This may involve a weighing of the evidence of arteriolar sclerosis against the evidence of inflammation. If complete glomerular disappearance occurs to the extent indicated in this investigation, the final pathologic picture may throw but little light on the pathogenesis of certain types of chronic renal disease.

Extragenital Chorionepithelioma in a Man.—Kantrowitz presents a case with necropsy observations in a man, aged 22, having a primary teratoma of the anterior mediastinum containing chorionepitheliomatous elements. The tumor invaded the superior vena cava, studding both lungs with chorionepitheliomatous nodules. Careful gross examination revealed no metastases in the other organs or lymph nodes. The genital tract (testicles, vas deferens, seminal vesicles and prostate) showed no tumor nodules. The testicles were sectioned in 2 mm. blocks, and slides were made from each block. Examination revealed no tumor nodules. Microscopic examination of the tumor revealed teratomatous and chorionepitheliomatous elements. Only chorionepithelioma was found in the pulmonary metastases. The testicles showed no neoplastic elements. Marked interstitial cell hyperplasia of the testicles was seen. These observations refute the contention of Prym and Oberndorfer that in man chorionepithelioma always goes together with tumors of the testicles. The Aschheim-Zondek test was positive in both the urine and tumor tissue extracts.

Annals of Medical History, New York

6: 291-380 (July) 1934

Albert Leon Charles Calmette (1863-1933). K. E. Birkhaug, Paris, France.—p. 291.
Dr. Walter Brashear. A. C. McCarty, Louisville, Ky.—p. 301.
European Anatomy Before Vesalius. W. T. Dempster, Ann Arbor, Mich.—p. 307.
History of Medical Education in New Orleans from Its Birth to the Civil War. A. E. Fossier, New Orleans.—p. 320.
John Jennings Moorman: Biographic Note. G. Hinsdale, White Sulphur Springs, W. Va.—p. 353.
Men and Events in the History of the Philadelphia Pathologic Society. D. Riesman, Philadelphia.—p. 359.

Annals of Surgery, Philadelphia

100: 1-240 (July) 1934

*Primary Carcinoma of Lung: Report of Case of Primary Carcinoma of Upper Lobe of Left Lung, Treated Successfully by Lobectomy and Subsequent Thoracoplasty. A. Young, Glasgow, Scotland.—p. 1.
Study of Morphology of White Corpuscles of Blood in Prognosis of Operations. F. T. Arvanitopulo, Leningrad, U. S. S. R.—p. 11.
Use of Fascial and Tendon Grafts in Certain Fractures and Dislocations. E. W. Hey-Groves, Bristol, England.—p. 20.
Anatomic Study on the Superior Hypogastric Plexus or Presacral Nerve from Surgical Standpoint. W. Dobrzaniecki and K. Serafin, Lwów, Poland.—p. 30.
Problem of Extradural Hemorrhage: Report of Fourteen Cases. C. P. G. Wakeley and T. K. Lyle, London, England.—p. 39.
Influence of Elevations of Basis Cranii Interna on Operative Approach to Sella Turcica. B. Fuchs, Novosibirsk, Siberia, U. S. S. R.—p. 51.
Alcohol Injections of Gasserian Ganglion for Trigeminal Neuralgia. I. M. Irger, Minsk, Russia.—p. 51.
Congenital Fistula of Body of Tongue. M. L. Montgomery, San Francisco.—p. 68.
*Venous Obstruction in Upper Mediastinum. L. S. Pilcher 2d and R. H. Overholt, Boston.—p. 74.
Traumatic Aneurysm of Subclavian Artery. W. E. Lee, C. F. Mitchell and A. B. Peacock, Philadelphia.—p. 87.
Removal of Bullet from Posterior Wall of Left Ventricle of Heart. A. H. Burgess, Manchester, England.—p. 111.
Acute Empyema in Children. J. V. Bohrer, New York.—p. 113.
Contribution to Diagnosis and Treatment of Hydatid Cysts of Lung. G. Carayannopoulos, Athens, Greece.—p. 125.
*Intestinal Obstruction: Analysis of Five Hundred and Five Cases from Records of Cook County Hospital, Chicago. K. A. Meyer and J. L. Spivack, Chicago.—p. 148.
Acute Intestinal Obstruction: Comparative Study of Five Hundred and Eleven Cases, with Especial Reference to Lowered Mortality Achieved by Modern Methods of Therapy. W. Moss and Elizabeth M. McFetridge, Lake Charles, La.—p. 158.
Peristalsis and Peritonitis. H. P. Brown Jr., Philadelphia.—p. 167.
Gastroduodenal Resection as Systematic Treatment of Duodenal Ulcer. A. Chiasserini, Rome, Italy.—p. 172.
Pyloroplasty: Its Place in Treatment of Peptic Ulcer. E. S. Judd and J. R. Phillips, Rochester, Minn.—p. 196.
Appendicitis. D. P. D. Wilkie, Edinburgh, Scotland.—p. 202.
Radical Surgery of Cancer of Pancreas. G. Gordon-Taylor, London, England.—p. 206.
Pancreatic Cancer and Its Treatment by Implanted Radium. W. S. Handley, London, England.—p. 215.
Surgery in Syria. A. A. Khairallah, Beirut, Syria.—p. 224.
Retroperitoneal Cysts. F. H. Lahey and E. B. Eckerson, Boston.—p. 231.

Primary Carcinoma of Lung, Treated Successfully.—Young treated a case of primary carcinoma of the lung by lobectomy. The patient is fit and well two years after operation. The type of operation followed, namely, trapdoor thoracotomy, proved in every way satisfactory. It gave excellent exposure and the utmost freedom to the operative technic of removal. The individual ligation of entering arteries and returning veins seems, when practicable, to be preferable to mass ligation of the stump as practiced by many operators today. It is questionable whether this procedure of individual ligation need add materially to the duration of the operation. The chief difficulty would seem to be in respect to the effective closure of the bronchus, but this difficulty should be readily enough overcome if a small portion of lung tissue is left, which may be closely sutured over the crushed, ligated and inverted stump of the bronchus.

Venous Obstruction in Upper Mediastinum.—Pilcher and Overholt found fifty patients in a group of surgical patients harboring lesions in the upper chest and the mediastinum who showed evidence of obstruction of the superior vena cava or innominate veins. Many of these patients complained of symptoms that were attributable to the effects of the disturbed venous circulation. Dilatation of the neck and arm veins was the most common physical sign. In many of these patients, however, dilated veins were not visible and definite symptoms were lacking. In these patients the presence of venous obstruction was discovered entirely by measurement of the venous pressure. It is therefore important in the study of patients with lesions in or near the mediastinum to measure the venous pressure directly in order to determine accurately the status of the upper venous system. In the great majority of the fifty patients it was possible to relieve the obstructive lesion surgically. In a few cases, radiation therapy was effective. Venous pressure estimations taken at intervals postoperatively were particularly valuable in determining the degree of relief of the venous obstruction. Relief of symptoms accompanied the restoration of the venous pressure to normal in each case.

Intestinal Obstruction.—Meyer and Spivack observed that the mortality of surgically treated cases of acute intestinal

obstruction has been reduced but little in the last twenty-five years. In their series of 505 cases it was 48.6 per cent. The high mortality is due to late surgical intervention when the "triad" of symptoms is present. This "triad" appears late, when the patient is practically moribund. Injection of physiologic solution of sodium chloride and dextrose cannot compensate for the damage of delay and does not influence appreciably the degree of mortality. The mortality will be reduced appreciably only by early operation and this will be possible only when early diagnoses are made. An early diagnosis is possible only by taking flat roentgenograms as a routine measure. A "herring-bone" appearance shows the earliest stage of obstruction, a "step-ladder" appearance shows a more developed process and "fluid levels" show the well advanced intestinal obstruction. In every postoperative abdominal case in which intermittent abdominal pain arises, it is advisable to take a roentgenogram by a portable apparatus and not to wait until the grave "triad" appears.

Archives of Dermatology and Syphilology, Chicago

30: 1-176 (July) 1934

Treatment of Resistant Somatic Syphilis. C. C. Dennie and W. L. McBride, Kansas City, Mo.—p. 1.
Hydrogen Ion Concentration of Lotions Used in Treatment of Acne. H. Goodman, technical assistance by A. Taub, New York.—p. 6.
Preparation of Trichophytin. A. P. Krueger, clinical note by H. J. Templeton, Oakland, Calif.—p. 9.
Old French Poem on Syphilis and Its Proper Treatment. W. R. Riddell, Toronto.—p. 11.
Kahn Reaction in Group of College Students. N. Nagle and J. C. Willett, St. Louis.—p. 21.
*Pemphigus: Evidence in Support of Bacteremia as Explanation of Certain Terminal Changes in Blood Picture. A. W. Grace, technical assistance by Edith Ross, New York.—p. 22.
Aid in Management of Occupational Contact Dermatitis (Dermatitis Venenata). A. P. R. James, Toledo, Ohio.—p. 30.
Cutaneous Manifestations of Arsenic Poisoning. S. Ayres Jr. and N. P. Anderson, Los Angeles.—p. 33.
*Autolysate Therapy for Verruca Vulgaris. F. E. Cormia, Philadelphia. —p. 44.
*Colloidal Mercury Sulphide in Treatment of Syphilis. G. E. Wakerlin, Louisville, Ky.—p. 49.
Hematogenous Cutaneous Tuberculosis (Sarcoid) in Negroes: Report of Six Cases. R. Nomland, Chicago.—p. 59.
Dermatitis Due to Potassium Mercuric Iodide. J. Lawrence and M. J. Strauss, New Haven, Conn.—p. 76.
Kraurosis, Leukoplakia and Pruritus Vulvae: Correlation of Clinical and Pathologic Observations with Further Studies Regarding Resection of the Sensory Nerves of Perineum. H. Montgomery, V. S. Counseller and W. M. Craig, Rochester, Minn.—p. 80.

Pemphigus.—Grace confirms Kissmeyer's original observation of a progressive diminution in the number of eosinophil leukocytes with increasing activity of the clinical condition in two cases of pemphigus. Bacterial strains, obtained in one instance sixteen days and in the other thirty-one days before death, were found to be identical with strains obtained from the cardiac blood at necropsy. Absorption of bacteria into the blood stream from the base of a purulent bulla is not an unlikely happening in a debilitated condition such as these patients showed at the time the bulla fluids were examined. It is also known that bacteremia or toxemia resulting from the activity of pyogenic organisms can produce a total and differential white blood picture such as these patients showed and can also be associated with temperature charts similar to those obtained in these cases. Therefore the author is of the opinion that there was a progressive, subacute bacteremia in the two cases, beginning at approximately the time of aspiration of the bullae, and that this bacteremia was responsible for the change in the leukocyte picture.

Autolysate Therapy for Verruca Vulgaris.—Cormia prepared a wart autolysate in accordance with the methods suggested by Biberstein and Soule. He treated twelve patients, each receiving at least ten injections of autolysate. In only two cases was a cure effected, and here the specific immunologic action was questionable.

Colloidal Mercury Sulphide in Treatment of Syphilis.—Wakerlin administered a total of approximately 800 intravenous injections of colloidal mercury sulphide to a series of thirty syphilitic patients in various stages of the disease in order to test the antisyphilitic potency of the drug and its suitability for intravenous use. The patients having early syphilis were given an initial course of twenty-four semiweekly injections of 60 mg. of the drug, followed by alternate courses of neoarsphenamine, colloidal mercury sulphide and a bismuth compound. The patients presenting more advanced forms of the disease received a course of twenty-four weekly injections of 60 mg. of the drug followed by the combination therapy indicated. Colloidal mercury sulphide showed a favorable effect on the lesions and serologic changes of primary and secondary syphilis that was only slightly, if at all, inferior to that of the arsphenamines. The patients presenting clinical manifestations of late syphilis also responded favorably to the drug. The serologic response to colloidal mercury sulphide therapy was excellent in early latent syphilis, although the drug was ineffective in reversing the positive Wassermann reactions in long standing latent or congenital syphilis if the patients had previously received approximately four years of more or less regular treatment with standard antisyphilitics. Examinations of the spinal fluid indicated that colloidal mercury sulphide influenced the changes in the spinal fluid neither favorably nor unfavorably. There were no local or systemic reactions by the intravenous administration of the drug. In a definitely therapeutic range of dosage, colloidal mercury sulphide was well tolerated and showed a low incidence of mild mercurialism. A series of twelve or fifteen weekly injections of 60 mg. of the drug may be repeated one or more times during therapy. Patients presenting early syphilis who tolerate the arsphenamines poorly may be given an initial course of twenty-four semiweekly injections of 60 mg. or twelve weekly injections of 120 mg. of colloidal mercury sulphide with the assurance of producing a prompt healing of the lesions and a satisfactory effect on the Wassermann reaction.

Archives of Neurology and Psychiatry, Chicago

32: 1-256 (July) 1934

Thalamic Nuclei of Pithecus (Macacus) Rhesus: I. Ventral Thalamus. J. W. Papez and L. R. Aronson, Ithaca, N. Y.—p. 1.
Id.: II. Dorsal Thalamus. L. R. Aronson and J. W. Papez, Ithaca, N. Y.—p. 27.
*Relationship of Migraine, Epilepsy and Some Other Neuropsychiatric Disorders. H. A. Paskind, Chicago.—p. 45.
Effects of Unilateral and Bilateral Labyrinthectomy and Intracranial Section of Eighth Nerve: Experiments on Monkeys. P. Northington and S. E. Barrera, New York.—p. 51.
Cerebral Circulation: XXIX. Microscopic Observations on Living Choroid Plexus and Ependyma of Cat. T. J. Putnam and E. Ask-Upmark, Boston.—p. 72.
Effects of Stimulation of Sympathetic and Dorsal Roots on Contraction of Skeletal Muscle. H. G. Wolff and M. Cattell, New York.—p. 81.
Leukemic Changes in Brain: Report of Fourteen Cases. I. B. Diamond, Chicago.—p. 118.
*Primary Ependymitis: Subacute Type with Occlusion of Foramina of Monro and Hydrocephalus of Lateral Ventricles. J. G. Arnold Jr., Baltimore.—p. 143.
Study of Motor Automatisms. M. Seham and D. V. Boardman, Minneapolis.—p. 154.
*Cerebral Complications of Putrid Pleuropulmonary Suppuration. I. Cohen, New York.—p. 174.

Relationship of Migraine, Epilepsy and Other Neuropsychiatric Disorders.—Paskind compared the prevalence of familial, parental and personal migraine among patients having epilepsy with the incidence among patients presenting no neuropsychiatric disorders and among patients with manic-depressive psychosis, trigeminal neuralgia, psychasthenia, dementia praecox, tic, constitutional inferiority and paranoid states. These comparisons indicate that there is no special relationship between migraine and epilepsy and that migraine occurs as evidence of a familial neuropathic trend in the other neurologic conditions studied.

Primary Ependymitis.—Arnold states that primary ependymitis is a distinct pathologic entity and reports a case of the subacute type. The pathologic changes are characterized by a selective subacute inflammatory process, which involves the entire ventricular system, being limited to the ependyma, subependyma and choroid plexus. Should ventricular obstruction not occur in the subacute stage, the inflammatory reaction subsides and the condition becomes chronic. The inflammatory process with subependymal glial proliferation tends to occlude the ventricular foramina, with the development of obstructive hydrocephalus. The choroid plexus is the most likely portal of entry of the toxins or bacteria. The signs and symptoms are due chiefly to hydrocephalus: increased intracranial tension (headache, vomiting, mental changes, papilledema, bradycardia and occasionally convulsions), few, if any localizing signs, and

a tendency toward remissions. The disease is simulated by cerebral neoplasm, tuberculous meningitis and syphilitic meningitis.

Cerebral Complications of Putrid Pleuropulmonary Suppuration.—Cohen reviewed nineteen cases that presented cerebral symptoms complicating pleuropulmonary suppuration, dividing them arbitrarily into three groups: abscess of the brain, aseptic embolus and psychosis. He suggests that a single etiologic factor is present in all groups; namely, an embolus. In the first group the embolus is infected and in the second group aseptic; in the third group it is postulated as a factor in the psychosis.

Archives of Otolaryngology, Chicago

20: 1-138 (July) 1934

Ménière's Disease: Symptoms, Objective Findings and Treatment in Forty-Two Cases. W. E. Dandy, Baltimore.—p. 1.
Color Index of Nasal Septum: Critical Study of Vasomotor Mechanism of Nose. L. B. Bernheimer, Chicago.—p. 31.
Changes in Lysozyme Content of Nasal Mucus During Colds. A. Hilding, Duluth, Minn.—p. 38.
Cholesteatoma Associated with an Isolated Perforation in Shrapnell's Membrane. J. R. Lindsay, Chicago.—p. 47.
External Fronto-Ethmosphenoid Operation: New Mucosal Flap for Controlling Frontonasal Drainage and Granulation Tissue; Review of Sphenoid Technic. E. C. Sewall, San Francisco.—p. 57.

Archives of Surgery, Chicago

29: 1-170 (July) 1934

Avertin (Tribrom-Ethanol) Anesthesia in Normal Persons. E. E. Arnheim and L. R. Tuchman, New York.—p. 1.
Gunshot Wounds of Head: Analysis of One Hundred and Five Cases. J. V. Goode, Dallas, Texas.—p. 16.
Quantitative Study of Rate of Healing in Bone: I. Description of Method. W. T. Peyton, U. S. Anderson and C. W. Laymon, Minneapolis.—p. 23.
Hepatolienography: Experimental Study of Elimination of Contrast Medium. H. H. Cooke, Lowville, N. Y.—p. 29.
Accessory Articular Processes of Lumbar Vertebrae. W. S. Fulton and W. K. Kalbfleisch, Wheeling, W. Va.—p. 42.
*Peripheral Arterial Thrombosis: Secondary to Gonorrheal Arthritis and Intramuscular Injection of Milk. C. H. Mead, Duluth, Minn., and R. L. Stewart, Minneapolis.—p. 49.
*Influence of Venous Stasis on Heterotopic Formation of Bone. N. W. Roome, Chicago, and P. E. McMaster, Los Angeles.—p. 54.
Subcutaneous Bilateral Sarcoid of Gluteal Region: Report of Case. A. Koerner, D. H. Kling and D. Sashin, New York.—p. 59.
Influence of Bladder Transplants on Healing of Defects of Bone. G. H. Copher and J. A. Key, St. Louis.—p. 64.
Acanthoma of Anus: Report of Three Cases. F. D. Hankins and W. G. Harding 2d, Los Angeles.—p. 77.
New Instrument for Intravesical Irradiation. O. S. Lowsley and S. L. Wang, New York.—p. 85.
Traumatic Vasospasm: Study of Four Cases of Vasospasm in Upper Extremity. E. P. Lehman, University, Pa.—p. 92.
Neurofibromatosis with Ocular Changes and Involvement of Thoracic Spine: Report of Case. M. M. Copeland, L. F. Craver and A. B. Reese, New York.—p. 108.
Retroperitoneal Perirenal Lymphangioma. H. L. Kretschmer and W. G. Hibbs, Chicago.—p. 113.
*Pericardiectomy for Advanced Pick's Disease. J. B. Flick and J. H. Gibbon Jr., Philadelphia.—p. 126.
*Treatment of Myositis, Arthritis and Disturbances of Peripheral Circulation with Histamine by Cataphoresis. D. H. Kling, Los Angeles.—p. 138.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; J. Verbrugge, Antwerp, Belgium; A. B. Hepler, Seattle; R. Gutierrez, New York, and V. J. O'Conor, Chicago.—p. 149.

Peripheral Arterial Thrombosis.—Mead and Stewart report a case in which a gonorrheal infectious process and the intramuscular injection of milk seem to be etiologic factors in the production of peripheral arterial thrombosis and gangrene in the first three toes of the left foot. The authors failed to find a previous record of the intramuscular injection of milk as a probable etiologic factor in the production of peripheral arterial thrombosis. The reaction of the patient to the injection of foreign protein was in no way unusual, being high temperature, leukocytosis, profuse perspiration, headache, backache, abdominal pain and increased pain in the affected joints. It is not difficult, however, to associate a possible chemical action on the blood with the other etiologic factors in the production of arterial thrombosis. At least the injection of milk was a potential etiologic factor in this case and clinically seemed to exert a potent influence in the production of the thrombotic lesions.

Influence of Venous Stasis on Heterotopic Formation of Bone.—Roome and McMaster studied the effect of venous stasis on heterotopic formation of bone induced by transplanting similar portions of mucosa of the urinary bladder into the muscle planes of both hind legs in a series of six dogs. The femoral vein and its tributaries in the upper portion of the thigh were ligated and excised on one side, while the other leg was used as a control. In five cases more bone was formed in the leg with venous ligations than in the control leg, while in one case the amounts were equal, as studied by roentgenograms and by weighing the bone plaques. The bone formed about the transplant increased in density for a period of a few months and then atrophied, although the bone did not entirely disappear from the legs in the one case that was observed for two and a half years. Heterotopic formation of bone is accelerated by venous stasis.

Pericardiectomy for Advanced Pick's Disease.—Flick and Gibbon performed anterior partial pericardiectomy on a 12 year old boy with advanced Pick's disease. The thickened calcified epicardium was not removed. There was slight temporary improvement after the operation, but death occurred forty-six days later. At necropsy, adhesions were found to have reformed between the heart and the remaining portion of the pericardium. The failure to relieve the patient of his symptoms was attributed to the presence of a thickened epicardium. The author discusses the significance of the low serum proteins found prior to operation.

Histamine in Treatment of Myositis and Arthritis.—Kling points out that the effect of histamine treatment consisted in a dilatation of the minute vessels and the smaller arterioles and in an increase in the flow of blood and in the permeability of the vessels, which caused a hyperemia and elevation of the cutaneous temperature for a duration of several hours. A definite conclusion as to the value of this method is at present possible only in myositis. Of 376 patients, 343 were cured or improved; recurrences were noted in thirty-three patients. Of thirty-two private cases of myositis, twenty-four were cured or improved and eight remained unimproved. Immediate relief of pain and tenderness after the first treatment was of favorable prognostic significance. Secondary myalgia due to static unbalance after trauma and strain was benefited in a moderate number of the cases reported. Five patients with subacromial bursitis and two with tenosynovitis were treated successfully. In 151 cases of arthritis reported in the literature, improvement occurred in 124; in twenty-two cases the arthritis recurred. In twenty-four personal cases of arthritis, fourteen were improved and ten unimproved.

Journal of Immunology, Baltimore

27: 1-124 (July) 1934

Influence of Nutrition on Natural Immunity Reactions of Blood and on Skin Reactions to Bacterial Toxins. E. J. M. Anderson and A. H. H. Fraser, Aberdeen, Scotland.—p. 1.
Immunologic Characteristics of the Poliocidal Substance in Human Serum: Concentration, Thermostability, Absorption and Specificity. C. W. Jungeblut, New York.—p. 17.
Inactivation of Poliomyelitis Virus and of Diphtheria Toxin by Various Endocrine Principles. C. W. Jungeblut, K. Meyer and E. T. Engle, New York.—p. 43.
Rôle of Autonomic Nervous System in the Anaphylactic Smooth Muscle Contraction. C. V. Seastone Jr. and A. Rosenblueth, Boston.—p. 57.
Effect of Reticulo-Endothelial Cell Blockade on Antibody Formation in Rabbits. L. Tuft, with assistance of Mary Mulrooney, Philadelphia.—p. 63.
Comparison of Sensitizing and Therapeutic Effect of Rabbit and Horse Antipneumococcus Type I Serums in Albino Mice. Julia Mehlman and Beatrice Carrier Seegal, New York.—p. 81.
Refractory State as Concerns the Shwartzman Phenomenon: II. Inhibition of Refractivity-Producing Factors in Moccasin Venom by Antivenin and Normal Horse Serum. S. M. Peck, New York.—p. 89.
*Study of Pneumococcus Carriers. Eleanor A. Bliss, W. D. McClaskey and P. H. Long, Baltimore.—p. 95.
Electric Charge of Bacteria Sensitized with Purified Agglutinins. L. Olitzki, Jerusalem, Palestine.—p. 105.
Sensitization of Guinea-Pigs to Poison Ivy. F. A. Simon, Margaret G. Simon, F. M. Rackemann and L. Dienes, Boston.—p. 113.

Study of Pneumococcus Carriers.—In an effort to determine whether the constant carrying of pneumococci in the throat was associated with frequent infections of the upper respiratory tract, Bliss and her associates obtained throat cultures from a group of twenty young adults approximately once a week over a period of two academic years. Of the 1,016 throat cultures that were obtained, 34.5 per cent were positive for pneumococci. After the first year it seemed that indi-

viduals could be divided into three groups with respect to the carrying of pneumococci: chronic carriers, intermittent carriers and noncarriers. However, at the end of the second year it became apparent that those individuals who had been classed as intermittent carriers were, in reality, chronic carriers, for, although few positive cultures were obtained from them, and those irregularly, the same type of pneumococcus recurred in their cultures. It was found that there was little difference in the frequency and duration of infections of the upper respiratory tract between the chronic carriers and the noncarriers. While the same type of pneumococcus tends to recur in the throat cultures from a chronic carrier, it is frequently possible to demonstrate the simultaneous carrying of two or three types of pneumococci in these persons, if the proper procedures are used. The authors believe that their study adds evidence in favor of the theory of the stability of pneumococcus types in the human being.

Journal of Industrial Hygiene, Baltimore

16: 201-254 (July) 1934

Ulcers of Stomach in Lead Workers. Anna Makaritschewa and Tatiana Glagolewa, Leningrad, U. S. S. R.—p. 201.
Silicosis Among Sandstone Workers in Scotland and the North of England. T. Ferguson, London, England.—p. 203.
Cancer and Some Anticarcinogenic Influences. M. Copisarow, Manchester, England.—p. 212.
*Cause of Bakers' Eczema. Erna Zitzke, Cologne, Prussia.—p. 218.
Compensation Aspect of Occupational Dermatitis. W. J. O'Donovan, London, England.—p. 223.
Health Hazards in the Foundry Industry. W. J. McConnell and J. W. Fehnel, New York.—p. 227.

Cause of Bakers' Eczema.—Zitzke, in examining 149 bakers suffering from eczema, found that 41.8 per cent reacted positively to flours not treated with chemicals, but 67.2 per cent showed a positive reaction to flour to which chemicals (ammonium persulphate, acid calcium phosphate and potassium bromate) had been added. Eighty-six of the 149 bakers, or 58 per cent, reacted positively to the treated flour, whether the test was a subcutaneous one made with flour containing ammonium persulphate or a patch test with ammonium persulphate. Eight bakers alone reacted positively to ammonium persulphate patch tests, while the subcutaneous method of testing with treated flours gave negative results. The results indicate that the primary injurious substance in the treatment of flour is ammonium persulphate. This leads in most cases to a hypersensitivity of the organism, which occurs only rarely in exposure to pure flour albumin. Whether it is the chemicals alone that produce the hypersensitivity or whether under the influence of these chemicals a molecular change takes place in the albumin which raises its allergic quality cannot be proved by means of examination but can only remain in the sphere of probability.

Laryngoscope, St. Louis

44: 515-598 (July) 1934

Tinnitus Aurium, Etiology, Differential Diagnosis, Treatment and Review of Twenty-Five Cases. M. M. Kafka, Far Rockaway, N. Y.—p. 515.
*Schwabach's Test: The Author's Test: Comparative Study. B. M. Becker, Brooklyn.—p. 544.
Respiratory Paralysis in a Case of Cerebellar Abscess: Autopsy Finding: Herniation of Cerebellum into Foramen Magnum. G. B. Fred, Boston.—p. 550.
Lingual Goiter. E. J. Whalen, Hartford, Conn.—p. 555.
Interrelationship of Sinus Disease and Bronchiectasis, with Especial Reference to Prognosis. L. H. Clerf, Philadelphia.—p. 568.
Carcinoma of the Middle Turbinate: Case Report. E. S. Lodge, Los Angeles.—p. 572.
*Opticofacial Winking Reflex. S. M. Weingrow, New York.—p. 577.
New Mouth Gag for Cleft Palate Operation. H. D. Newkirk, Anaheim, Calif.—p. 587.

Comparative Study of Hearing Tests.—In performing Becker's hearing test, the examiner faces the patient and presses his own auricle against that of the latter, thereby converting his own auditory meatus and that of the patient into closed cavities. If the patient's right ear is to be tested, the examiner places his own right ear against that of the former. A strongly vibrating fork is set on the patient's mastoid opposite the obstructed ear and he is instructed to concentrate on the sound and to inform the examiner of the exact moment when he ceases to hear it. When the patient no longer hears the sound the examiner notes, in terms of seconds, the difference between his own hearing time and that of the patient. In all conditions save that of perceptive deafness in the patient, the examiner and the examined will hear the sound for the same length of time. Therefore it follows that if the examiner hears the sound longer than the patient (making allowance of between three to five seconds for normal variations in the hearing time of the two), the latter suffers from a perceptive lesion. The degree of involvement can be judged by the number of seconds the examiner hears the sound longer than the patient. The conditions under which the two hear the sound of the fork are so similar that the test can be reversed; that is, the examiner can place the fork on his own mastoid with the patient listening to the sound through the former's skull without in the least altering the results.

Opticofacial Winking Reflex.—In elicitating the opticofacial reflex (closure of the lids when an object is brought suddenly into the field of vision) for testing unilateral or bilateral marked visual impairment or destruction, Weingrow places his hand above, to the side or below the eyes of the subject and out of his field of vision; then he moves it suddenly across the eyes, thus causing a sudden closure of both lids. If one eye is shielded by a cardboard and the other eye stimulated, there results a bilateral closure of the lids. The afferent path of this reflex is the same as that of the emergency light reflex, but the efferent path seems to be confined to the facial nerve. The author reports cases presenting such impairment with the consequent involvement of the opticofacial reflex and gives reference to cases in which the efferent part of the opticofacial reflex arc is involved.

Michigan State M. Society Journal, Grand Rapids

33: 339-408 (July) 1934

Carcinoma of the Colon: Surgical Considerations. C. W. Mayo, Rochester, Minn.—p. 351.
Excretory Urography. J. B. Jackson, Kalamazoo.—p. 356.
Fluorides as an Aid to Iodine in Hyperthyroidism. W. S. Reveno, Detroit.—p. 359.
Etiologic Approach to Asthmatic Breathing. S. W. Insley, Detroit.—p. 364.
Functional Disorders of the Ovary. J. P. Pratt, Detroit.—p. 370.
Office Treatment of Pernicious Anemia with Liver Extract Intravenously and Intramuscularly. P. W. Kniskern, Grand Rapids, and L. G. Christian, Lansing.—p. 373.
Functional Disorders of the Colon. E. L. Eggleston, Battle Creek.—p. 378.
Operations on the Orbit. W. L. Benedict, Rochester, Minn.—p. 383.
Chronic Subdural Hematoma Complicating Severe Brain Injury. E. S. Gurdjian, Detroit.—p. 387.
Physicians Without the Degree "M.D." R. Berman, Detroit.—p. 390.

New England Journal of Medicine, Boston

211: 49-98 (July 12) 1934

Hyperinsulinism Without Demonstrable Pancreatic Changes in an Eleven Year Old Child: Case. J. A. Boone, Harlingen, Texas.—p. 49.
Incidence of Neurocirculatory Asthenia With and Without Organic Heart Disease: Note. J. C. Edwards, Springfield, Mass., and P. D. White, Boston.—p. 53.
Fracture of the (Navicular) Carpal Scaphoid. J. H. Burnett, Boston.—p. 56.
Heart Disease. L. M. Hurxthal, Boston.—p. 61.
Study of One Hundred and Seven Cases of Early Syphilis. F. Thurmon, Boston, and L. Koretsky, Springfield, Mass.—p. 65.
Progress of Nutrition. F. L. Burnett, Boston.—p. 68.

211: 99-142 (July 19) 1934

Value of Commercial, Antibacterial Streptococcus Serums in Hemolytic Streptococcus Infections. L. D. Fothergill and R. Lium, Boston.—p. 99.
*Gonococcus Complement Fixation Test in Blood and Synovial Fluid of Patients with Arthritis. W. K. Myers and C. S. Keefer, Boston.—p. 101.
Use of Insulin in Malnutrition. H. Blotner, Boston.—p. 103.
Arthus Phenomenon: Report of Clinical Case. J. A. Maroney, Worcester, Mass.—p. 106.
Auscultation of the Abdomen: Aid to Diagnosis. N. C. Stevens, Glen Cove, Long Island, New York.—p. 108.
Prolapse of Uterus During Pregnancy. D. E. Higgins, Epping, N. H.—p. 125.

Gonococcus Complement Fixation Test in Arthritis.—Myers and Keefer observed the results of the gonococcus complement fixation reaction of the blood serums and synovial fluids of forty-three patients having proved gonococcic arthritis and of sixty-six patients having rheumatic fever, rheumatoid arthritis or some other type of arthritis. A positive reaction was encountered in 86 per cent of the cases of gonococcic arthritis. The blood serums of only two of the seventy-one

patients who had joint disease not due to gonococcic infection gave isolated positive reactions. The reaction was doubtful in one patient with rheumatic fever who had a gonococcic prostatitis. The reaction of the blood serum and that of the synovial fluid, simultaneously collected, were with few exceptions identical. The examination of the synovial fluid offered little advantage over that of the blood serum. A positive Wassermann reaction did not influence complement fixation to the gonococcic antigen. The routine employment of this test in the study of patients with arthritis was valuable. In the authors' experience the employment of this test has proved to be of great value in the etiologic diagnosis of chronic arthritis.

New Jersey Medical Society Journal, Trenton

31: 315-376 (June) 1934

Surgical Mastoiditis in Infants. W. J. Greenfield, East Orange.—p. 330.
Suprapubic Prostatectomy. T. C. Stellwagen, Philadelphia.—p. 335.
*Absorption of Decomposition Products of Sweat as an Etiologic Factor in Vitiligo. W. O. Roop, Atlantic City.—p. 339.
Stovarsol (Spirocid): Its Use in Congenital Syphilis: Review of Literature and Report of Fourteen Cases. B. M. Joseph, Jersey City.—p. 343.
Abdominal Surgery in Infancy and Childhood. E. J. Donovan, New York.—p. 346.
Ectopic Paroxysmal Tachycardia. J. Wyckoff, New York.—p. 349.

Sweat an Etiologic Factor in Vitiligo.—Roop believes that sweat may be a possible causative factor of vitiligo. His theory is that vitiligo is the result of absorption by the skin of certain decomposition products of sweat which have remained and undergone a chemical change on the skin. This chemical, as yet undetermined, may be ammonia or ammonia carbonate and carbamate and, when so absorbed, depigments the skin by acting as a bleaching agent on the melanin of the pigment cells. The absorptive power of the skin is so definitely acknowledged and readily proved that it is unnecessary to elaborate on this point and it is this function of the skin which contributes to the possibility and plausibility of his theory. During the past summer three women patients consulted the author for treatment of beginning vitiligo; also one middle-aged man with vitiligo of a duration of three years, limited to the scrotum. In this group of cases marked sweating was evident in each case; and the more the author contemplated and checked these cases with vitiligo in general, the more he was convinced that they offered an important clue to the etiology of vitiligo.

Public Health Reports, Washington, D. C.

49: 783-810 (July 6) 1934

Effectiveness of Filtration in Removing from Water, and of Chlorine in Killing, Causative Organism of Amebic Dysentery. Bertha Kaplan Spector, J. R. Baylis and O. Gullans.—p. 786.

49: 811-838 (July 13) 1934

Time Distribution of Common Colds and Its Relation to Corresponding Weather Conditions. Mary Gover, L. J. Reed and S. D. Collins.—p. 811.
Electrocution: New Aid in Preparation of Mosquito Mounts. C. P. Coogle.—p. 824.

49: 839-868 (July 20) 1934

Pulmonary Infection in Pneumonoconiosis: I. Bacteriologic and Experimental Study. H. O. Proske and R. R. Sayers.—p. 839.

Science, New York

80: 43-80 (July 20) 1934

*Use of Absorbent Pulpit in Cultivation of Aerobic Organisms. J. W. Williams.—p. 75.
Apparatus for the Measurement of Respiratory Rate. R. H. Landon and W. G. Brierley.—p. 75.
Modification of the Mudd Electro-Enosmosis Apparatus. H. Klein.—p. 76.

Use of Absorbent Pulpit in Cultivation of Aerobic Organisms.—Williams describes a method that he has applied especially to fungi to study their aerobic tendencies. The fungi chosen were members of a group that had proved pathogenic to man. An absorbent possessing neither nutrient, antiseptic, chemically nor physically reactive properties is suitable. Blotting paper was chosen. A fast color is desirable, the most suitable color being dependent on the color of the organismal growth to be studied. For adaptation to test tubes, a two-legged pulpit of blotting paper with the horizontal portion above the fluid mediums proved satisfactory. The organism was planted on this portion and its growth observed. Some organisms grew on this portion alone, some on it and in the mediums and some in the mediums alone. When growth occurred in both situations, it often varied in marked degree both in character and in extent. The bacteria tried (Bacillus subtilis, Staphylococcus aureus, Bacillus coli) showed scanty growth on the pulpit and prolific growth in the mediums, while fungi (Trichophyton interdigitale, Epidermophyton inguinale) grew well on the seat. Growths which, because of their aerobic tendencies, would be inhibited or destroyed by sinking in liquid mediums can be prevented from doing so. The type of growth on the pulpit, on its legs and in the mediums can be observed. The site of growth can be observed. Growths have been carried on the pulpits for over two months and have shown no tendency to dry out. In a control on Sabouraud's proof medium there has been drying. It is necessary to test the absorbent used and assure oneself that it is innoxious.

Southwestern Medicine, Phoenix, Ariz.

18: 219-252 (July) 1934

What to Expect from Surgery in Treatment of Exophthalmic Goiter. W. L. Brown, C. P. Brown and J. L. Murphy, El Paso, Texas.—p. 219.
Treatment of Acute Intestinal Obstruction. W. O. Sweek and G. C. French, Phoenix, Ariz.—p. 224.
Pulsion Diverticulum of the Esophagus. C. T. Sturgeon, Los Angeles.—p. 227.
Surgery of the Biliary Tract. H. K. Gray, Rochester, Minn.—p. 229.
Functional Evaluation of Permanent Partial Disabilities. R. F. Palmer, Phoenix, Ariz.—p. 235.
Rural Obstetrics: Deliveries in the Home. G. T. Colvard, Deming, N. M.—p. 238.
Ocular Symptomatology in General Diseases. S. A. Schuster and F. P. Schuster, El Paso, Texas.—p. 239.

Texas State Journal of Medicine, Fort Worth

30: 177-238 (July) 1934

Cardiac Disorders in Surgical Patients: Criteria Used in Estimating Risk Involved. G. Herrmann, Galveston, and L. G. Herrmann, Cincinnati.—p. 183.
Typhus Fever in Texas. C. D. Reece, Austin.—p. 192.
Sugar Tolerance in Cancer with Reference to Degree of Malignancy. D. Jackson and D. A. Todd, San Antonio.—p. 197.
Fistula: Etiologic Factor in Cancer of Anal Canal. C. Rosser, Dallas.—p. 203.
*Modified Coutard Technic in Deep X-Ray Therapy. C. L. Martin, Dallas.—p. 207.
*Desensitization of Nasal Mucous Membranes for Relief of Hay Fever, Asthma and Food Allergy. H. L. Warwick, Fort Worth.—p. 210.
Use of Adult Whole Blood in Whooping Cough. W. D. Brown, Beaumont.—p. 216.
Some Recent Advances in Our Knowledge of Bone Metabolism: Laboratory Diagnostic Criteria in Clinical Hyperparathyroidism, Rickets and Other Disease of Bone. M. Bodansky, Galveston.—p. 218.
A Physician Views the Changing Era. C. T. Stone, Galveston.—p. 221.

Modified Coutard Technic in Roentgen Therapy.—In order to make the Coutard method workable, Martin developed a technic using 200 kilovolts, 0.75 mm. of copper and 1 mm. of aluminum filter, a target skin distance of 50 cm., and a current of 6 milliamperes. With these settings 300 roentgens can be given in twenty-five minutes with an intensity of 12 roentgens per minute. The author administered fourteen such doses (4,200 roentgens) to a single skin area in sixteen days. A denudation of the skin appeared in three weeks followed by rapid healing and no sequelae during a period of observation of eight months. When this therapy was administered to the side of the neck, the mucous membrane of the throat was denuded after about two weeks and the patient found swallowing difficult for a period of about ten days. However, healing was prompt.

Desensitization of Nasal Mucous Membranes in Hay Fever and Asthma.—Warwick has employed nasal ionization for the last seven years and he believes that intranasal ionization is the most satisfactory method of desensitizing the individual to pollens and foods, using an alloy of zinc, tin and cadmium as an electrode and the salts of these metals as the electrolyte. A safe, suitable direct current, which has been filtered previously, is best furnished by a special motor generator. Unless the patient is unusually hypersensitive, one treatment is sufficient, and some patients have remained immune for as long as seven years. No damage is done to the nasal membranes by the ionization treatment, as evidenced by laboratory examinations of specimens of tissues from three different cases. The reactions are not only local but systemic. Patients who have had the ionization treatment report that they are less susceptible to colds afterward.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

57: 91-210 (June) 1934

Familial Periodic Paralysis and Its Transition into Spinal Muscular Atrophy. A. Biemond and A. P. Daniels.—p. 91.
Analysis of Disturbed Function in Aphasia. K. Zucker.—p. 109.
Senile Plaques. L. Bouman.—p. 128.
Intrinsic Nervous Mechanism of the Human Lung. J. B. Gaylor. —p. 143.
*Subacute Spinocerebellar Degeneration Occurring in Elderly Patients. J. G. Greenfield.—p. 161.
Cholesteatoma of Middle and Posterior Cranial Fossae. G. L. Montgomery and D. I. C. Finlayson.—p. 177.
*Myotonia Acquisita in Relation to Postneuritic Muscular Hypertrophies. K. H. Krabbe.—p. 184.
Participation of Neuroglia in Formation of Myelin in Prenatal Infantile Brain. B. J. Alpers and W. Haymaker.—p. 195.

Subacute Spinocerebellar Degeneration in Elderly Patients.—Greenfield presents two cases of spinocerebellar degeneration. The disease came on in patients aged 66 and 57 years and ran a rapid course, with a fatal termination in three and seven months respectively from the onset of the first symptoms. In both patients, pains in the limbs were a prominent early symptom; this was succeeded by weakness and ataxia of the legs and arms, dysarthria and mental enfeeblement. Nystagmus was indefinite or quite absent, and no loss of skin sensibility was found. There was considerable pleocytosis and excess of protein in the cerebrospinal fluid in both cases. Pathologically, the condition was characterized by degeneration of the long tracts of the cord, especially the dorsal columns and cerebellar tracts, with earlier degeneration of the pyramidal tracts. There was gross loss of Purkinje cells in the cerebellar cortex, the granule cells being relatively spared. The superior cerebellar peduncles and the longer tracts in the tegmentum of the brain stem were involved in the second case. The nucleus of Luys and the strio-Luysial fibers were degenerated in both cases. The substantia nigra, nucleus ruber, nuclei pontis and olivary nuclei were unaffected and the cerebral cortex was intact. In both cases there was fairly intense perivascular infiltration in the neighborhood of degenerated tracts.

Acquired Myotonia and Postneuritic Muscular Hypertrophies.—Krabbe summarizes the twenty cases of true muscular hypertrophy described in the literature. In six of these cases the muscular hypertrophy developed after typhoid, one developed after a lead polyneuritis, one after sciatica, one after a traumatic lesion of the sciatic nerve and one patient had suffered from pleurisy or pneumonia before developing the muscular hypertrophy. Further, some cases are described in which such polyneuritic symptoms as paresthesia, pain and weakness of the muscles preceded the muscular hypertrophy. In only two cases did hypertrophy seem to have been connected with a cerebral lesion. The relatively numerous cases developing after typhoid have been considered by the authors due to a phlebitis. If the history of the disease is analyzed, it seems more probable that the preceding illness had been a neuritis caused by typhoid. On considering these cases as a whole, the author observes that true muscular hypertrophy generally develops after a polyneuritic syndrome or after a disease often associated with polyneuritis, and he draws the following conclusions: 1. In the majority of cases a polyneuritis is recovered from completely or it leaves a more or less marked atrophy of the affected muscles. 2. In some cases the recovery is excessive and the muscles hypertrophy. Sometimes a muscle hypertrophies as a whole, presenting normal power or a slight weakness. In other cases the sarcoplasm especially hypertrophies, and in these a myotonic condition will be the consequence of the hypertrophy. 3. If this hypothesis is valid, acquired myotonia and true muscular hypertrophy may be considered as two variations of the same abnormality: an abnormal regeneration after neuritic processes.

Bristol Medico-Chirurgical Journal

51: 89-154 (Summer) 1934

Association Between Goiter and Atrophic Rhinitis. E. Watson-Williams. —p. 89.
Focal Infection. A. J. M. Wright.—p. 109.
Diagnosis of Swellings of the Long Bones, with a Case of Periosteal Sarcoma of the Femur. A. W. Adams.—p. 117.
Expulsion of Bile. R. J. Brocklehurst.—p. 131.

British Journal of Dermatology and Syphilis, London

46: 303-340 (July) 1934

Erysipeloid. J. T. Ingram, bacteriologic report by R. D. Stuart.—p. 303.
Association of Herpes Catarrhalis with Erythema Multiforme (Hebra). L. Forman and G. P. B. Whitwell.—p. 309.

British Journal of Physical Medicine, London

9: 37-52 (July) 1934

Treatment of Insomnia in Nervous and Mental Disorders. E. Hopewell-Ash.—p. 39.
Biophysical Treatment in Nervous Disorders. F. H. Humphris.—p. 42.
Fibrositis: Causation and Treatment. C. C. Anderson.—p. 45.
Structure of Matter: Rutherford-Bohr and "Alternative" Atom. B. D. H. Watters.—p. 47.

British Journal of Radiology, London

7: 321-384 (June) 1934

Calcification, Decalcification and Ossification. R. W. Jones and R. E. Roberts.—p. 321.
Elimination of Afterglow and Latent Phosphorescence from Fluorazure (Zinc Sulphide) Intensifying Screens: Part I. General Description. L. Levy and D. W. West.—p. 344.
Id.: Part II. Physical Investigation. H. A. Edgerton and R. B. Brock. —p. 348.
X-Ray Treatment in Some Conditions of the Thyroid and Thymus. H. Davies.—p. 362.
"Calcinosis Universalis" with Premature Senility: Case. R. M. Beath. —p. 372.

7: 385-448 (July) 1934

Calcification, Decalcification and Ossification: Part II. R. W. Jones and R. E. Roberts.—p. 391.
*Cineradiography. R. J. Reynolds.—p. 415.

Cineradiography.—Reynolds believes that cinematography enables one to obtain a rapid, inexpensive and permanent record of the function of active organs. The continuous "band" enables one to study movement for an indefinite period, whereas an ordinary screen examination can be carried out only for a short period. These advantages are especially obvious in organs, such as the heart, of which one is desirous to examine several different parts in a state of movement at the same time. The permanent records of movements may be used for purely diagnostic purposes, comparison with former records, to watch the effects of treatment or the progress of a pathologic condition, teaching purposes and transmission abroad or elsewhere, either for the purpose of obtaining the opinions of specialists as to the nature of the case or for information purposes as to the condition of the patient in the past. The author stresses the fact that the cinematographic method of investigation will add greatly to the knowledge of the functioning of the heart, especially in the various irregularities arising in the cardiac lesion, for instance in a sino-auricular block. Apart from the clinical uses there are other fields of usefulness: the investigation of physiologic problems when opaque mediums may be injected into the circulatory system in animals.

British Journal of Urology, London

6: 101-206 (June) 1934

Clinical Value of Bladder Pressure Estimations. K. H. Watkins.—p. 104.
Presacral Sympathectomy and the Urinary Bladder. E. D. McCrea and A. D. MacDonald.—p. 119.
Function of the Testicles After Puberty. T. E. Hammond.—p. 128.
Review of One Hundred and Sixty-Two Consecutive Personal Cases of Stone in the Upper Urinary Tract. H. P. Winsbury-White.—p. 142.

British Medical Journal, London

2: 49-98 (July 14) 1934

Examination of Renal Function. F. S. Fowweather.—p. 49.
Review of Bladder Neck Obstructions, with Especial Reference to Transurethral Prostatic Resection. D. M. Morison.—p. 53.
High Carbohydrate Diets and Insulin Efficiency. H. P. Himsworth. —p. 57.
Agranulocytic Angina: Case. A. D. Briscoe.—p. 61.
Full Term Extra-Uterine Pregnancy with Living Child. W. A. Steel. —p. 62.
Notification of Tuberculosis in Great Britain: Historical Note. A. Newsholme.—p. 75.

Edinburgh Medical Journal

41: 401-464 (July) 1934

Studies on Prenatal Lesions of Striated Muscle as a Cause of Congenital Deformity: I. Congenital Tibial Kyphosis: II. Congenital High Shoulder: III. Myodystrophia Fetalis Deformans. D. S. Middleton. —p. 401.
Notes on a Series of Thirty-Seven Cases of Chronic Bacillus Coli Cystitis. Helen A. Wright.—p. 443.
Alkali Reserve and Fat Content of the Blood. R. F. Ogilvie.—p. 448.

Glasgow Medical Journal

4: 1-40 (July) 1934

Madness in Literature and Life. H. C. Marr.—p. 1
Infective Endocarditis Due to Bacillus Coli: Case. A. M. Crawford and R. Cruickshank.—p. 21.

Lancet, London

2: 63-116 (July 14) 1934

Viruses in Relation to Etiology of Tumors. C. H. Andrewes.—p. 63.
*Perineo-Abdominal Excision of Rectum in One Stage. W. B. Gabriel.—p. 69.
Cyst Formation in Ovarian Grafts: Report of Case. J. S. Hall.—p. 74.
Gastric Digestion of Raw and Boiled Milk in Infants. Jessie W. Ogilvie and Olive D. Peden.—p. 76.
*Displacement of the Internal Epicondyle into Elbow Joint: Four Cases Successfully Treated by Manipulation. N. W. Roberts.—p. 78.
Severe Serum Shock: Case and Investigation. J. Grant and M. M. Scott.—p. 80.
Bacillus Tuberculosis in Butter: Method of Examination. J. W. Edington.—p. 81.

Perineo-Abdominal Excision of Rectum.—Gabriel discusses the merits of perineal excision of the rectum compared with abdominoperineal excision. There is a field of usefulness for each operation, provided it is recognized that usually a combined abdominoperineal or a perineo-abdominal excision (the latter of which is the better method) is definitely more radical than a perineal excision. There are two possible exceptions to this rule. 1. Recent cases in which there is a single small mobile carcinoma in the middle or lower third of the rectum without glandular metastasis or evidence of related adenomas above the growth. In such cases a perineal excision is as radical and as effective in curing the patient as an abdominoperineal excision. 2. Advanced cases in which preoperatively it is possible to demonstrate digitally extrarectal spread in the form of nodules or indurated lymph nodes outside the rectal wall. These are advanced cases with marked lymphatic spread and if considered "operable" are certainly ineradicable by the perineal route and probably are equally ineradicable by a combined excision. The author has performed the perineo-abdominal operation in one stage in twenty-five cases of cancer of the rectum. There have been five operative deaths: two deaths occurred on the operating table; one occurred on the fourth day and was clearly due to cardiac failure with auricular fibrillation, and two occurred on the seventh day from a combination of small intestinal ileus and bronchitis; this happened before the author had begun the prophylactic injections of ampoules of pitressin. He believes that the justification for the operation in these cases is that microscopic proof of metastases in the glands along the line of upward lymphatic spread has been obtained in fourteen of the twenty-five cases. He is now restricting perineal excision to cases of carcinoma of the anal canal or lower third of the rectum in which the tumors are either very recent or so advanced that, by reason of involvement of the vagina, prostate or ischiorectal fossa, the extra risks of a combined excision do not appear to be justified.

Displacement of Internal Epicondyle into Elbow Joint.—Roberts reports four cases in which displacement of the internal epicondyle into the joint has been reduced by manipulative measures alone. He states that there is no reason to suppose that recovery of the ulnar nerve lesion or the ultimate function of the elbow will be prejudiced by this line of treatment. Stress is laid on the importance during manipulation of opening the inner side of the joint so as to allow the internal epicondyle to retrace its original displacement. In the absence of operative treatment there is the possibility of fibrous union of the epicondyle occurring; but this is of no importance, as fibrous union of the epicondyle occurred in two cases which had been submitted to open operation and in which the epicondyle had been sutured in its correct position. It appears likely that attempted manipulative reduction will be successful in a high proportion of cases seen within the first few days and that the necessity for open operation will be avoided, with consequent shortening of convalescence and prevention of any possible complications.

Medical Journal of Australia, Sydney

1: 829-856 (June 30) 1934

Nervous Factors in Disorders of Heart. C. B. Blackburn.—p. 829.
Remarks on Diagnosis of Acute Conditions of Abdomen. L. C. Lindon.—p. 836.

Medical Press and Circular, London

189: 61-96 (July 25) 1934

Bournemouth: The Health Resort. S. W. Smith.—p. 61.
Some Medicolegal Gleanings. W. Asten.—p. 63.
Some Points in Prognosis. C. A. Basker.—p. 68.
Manipulative Surgery. E. C. Bowden.—p. 70.
*Scope of Thoracic Surgery. N. F. Adeney.—p. 71.
'Eleven to 'Thirty-Four: Being Some Rambling Thoughts on the Past Twenty-Three Years. C. G. Morse.—p. 74.
Subarachnoid Hemorrhage: Review. D. L. Pugh.—p. 77.
Coliform Infections: Urinary and Otherwise. R. B. Scott.—p. 84.

Scope of Thoracic Surgery.—Adeney points out that it is by the understanding of one another's problems that the physician, the surgeon, the radiologist and the pathologist together have contributed to the enlargement of the scope of thoracic surgery. The main complaints for which relief is provided are hemoptysis, chronic cough, dyspnea and general toxemia. Of these, perhaps the chief pitfall that the profession is now only too slowly learning to avoid is that of attaching unjustifiably to the patient with hemoptysis or chronic cough the label of tuberculosis or chronic bronchitis, and then in the former case relegating him forthwith to the limbo of a sanatorium, or in the latter regarding him as hopeless save as a receptacle for the multitudinous inventions of the ingenuity of the manufacturing chemist. It may be that in hemoptysis it is wise to diagnose phthisis until it is disproved with the aid of negative roentgen and repeated sputum examinations. In the case of hemoptysis the wise clinician will consider the possibility of dry or hemorrhagic bronchiectasis and of neoplasm, either of which may yield to surgery. As with hemoptysis, so with chronic cough, which used to be labeled so readily chronic bronchitis or tubercle. Even now the real cause is overlooked, such as chronic empyema, lung abscess or bronchiectasis. Thoracic surgery, of all the fields of the surgeon's enterprise, is the one field of surgery prolific with perhaps the brighest prospects of future achievement, but withal one in which the wise man will learn by constant practical experience of its problems to temper his enthusiasm with a fair assessment as well of the dangers as of the benefits of his intervention.

Japanese Journal of Obstetrics and Gynecology, Kyoto

17: 185-254 (June) 1934

Cartilage of Lower End of Human Femur in Every Fetal Stage: Histologic Study. E. Terada.—p. 186.
Cancer in Human Being: Part II. Abnormal Cell Division: Histologic Study. T. Ota.—p. 194.
Ovulation and Estrual Hemorrhage in Dogs. T. Ota.—p. 203.
Polyovular Follicles of Dogs. T. Ota.—p. 207.
Study on Birth Control with Intra-Uterine Instrument. T. Ota.—p. 210.
*Investigation of Ferments in Uterine Cancer: Part I. Amylase in Uterine Cancer. K. Nakahori.—p. 215.
Ovarian Follicle Hormone Preparation "Pelanin" in Hypoplasia of the Uterus: Clinical Experiences. J. Kosakaé and T. Ohga.—p. 224.
Study of Icterus Neonatorum. H. Fujimori.—p. 235.

Investigation of Ferments in Uterine Cancer.—Nakahori measured the quantity of amylase in the carcinoma tissue, lymph nodes, mucosa and muscular layer of the uterus by the twenty-four hour method of Wohlgemuth. He found that the p_H optimum of amylase in these tissues lies between 6.8 and 7.4. The quantity of amylase varies greatly in each carcinoma tissue. In the carcinoma of immature type there is a greater quantity of amylase than in the mature type. The amount of amylase in some cauliflower-shaped carcinomas is very high. The amount of amylase in a lymph node is almost constant, no matter whether it is infiltrated by carcinoma or not. The amylolytic power of the endometrium of a cancerous uterus is almost the same as that of a noncancerous uterus. The quantity of amylase in the muscular layer of a cancerous uterus shows no specific change.

Journal of Oriental Medicine, South Manchuria

20: 61-68 (May) 1934

Behavior of Carbohydrate on Antitoxic Function Against Hydrocyanic Acid. C. Tsuru.—p. 61.
Biochemical Study on Nitrile Compound: Behavior of Carbohydrate in Formation of Rhodan. C. Tsuru.—p. 62.
Subconjunctival Injection of Hypotonic Sodium Chloride Solution in Therapy. M. Kawasaki.—p. 63.
Biochemical Study on Nitrile Compound: Part IV. Influence on Carbohydrate Metabolism. C. Tsuru.—p. 64.
Pellagroid Symptoms Following Injection of Trypaflavine (Acridine Dye). M. Murayama.—p. 66.
Composition of Human Hair. M. Fukushima.—p. 67.

Annales de Dermatologie et de Syphiligraphie, Paris

5: 553-648 (June) 1934

Chronic Ulcer of Penis in Nicolas and Favre Disease. A. Cedercreutz. —p. 553.
Foliaceous Pemphigus of Rapid Course, with Infectious State and Probable Septicemic State: Case. G. Petges, A. Petges and J. Dubarry.—p. 559.
Oriental Sore of Atypical Clinical Form: New Case. G. Higouménakis. —p. 568.
*Gonorrheal Serum Reaction in Cerebrospinal Fluid. J. Gadrat.—p. 576.

Gonorrheal Complement Fixation in Cerebrospinal Fluid.—As antigen in the gonorrheal serum reaction of the spinal fluid, Gadrat used the antigonococcus vaccine of the Pasteur Institute and as complement, fresh guinea-pig serum. He used a mixture of equal parts of 1:5 suspension of sheep blood cells and hemolytic serum in a dilution fixed by its dosage. The reaction is made with six tubes, three of them being controls. Five-tenths cubic centimeter of cerebrospinal fluid is added to each. Two tenths cubic centimeter of antigen is added to each, except for the three controls, to which an equal portion of physiologic solution of sodium chloride is added. To the three test tubes 0.1, 0.15 and 0.2 cc. of complement is added. The tubes are incubated for three quarters of an hour. Then 0.2 cc. of the hemolytic mixture is added throughout, and the tubes are incubated for three quarters of an hour and read. A weakly positive reaction is accepted when there is no hemolysis in tube 1, i. e., with 0.1 cc. of complement; a positive reaction when there is an absence of hemolysis in tubes 1 and 2, and a strongly positive reaction when there is no hemolysis in any of the three tubes. These tests were made on 115 patients. It was found that the reaction was positive in the cerebrospinal fluid in about 66 per cent of blenorrhagias, usually complicated. In some cases it remains positive longer than in the blood and survives both clinical and bacteriologic cure. This serologic characteristic exists without other cytologic or chemical alteration of the spinal fluid. It is independent of the Wassermann reaction. It allows the tracing of a certain number of latent gonorrheal infections.

Paris Médical

2: 45-76 (July 21) 1934

Neglected Ideas of Antidiabetic Dietetics. L. Dautrebande.—p. 45.
*Lesions of Acute Barbiturate Poisoning. G. Carrière, C. Huriez and P. Willoquet.—p. 61.
Early Getting Up in Abdominal Surgery. P. Smith.—p. 68.
Must One Always Tell Truth to Patients? A. Schwartz.—p. 73.

Lesions of Acute Barbiturate Poisoning.—Carrière and his co-workers carried out experimental studies on the lesions in rabbits resulting from the oral ingestion of fatal doses of a barbital preparation. Different organs and systems were examined and are described in detail. The changes, which affected all the organs, were hyperemia with capillary and venous congestion, fatty degeneration and terminal infection, except at the level of the lung, where a pneumonic process is often early. These are the three general characteristics of acute barbiturate poisoning. One can thus say that the barbiturates are fatal by initiating a degeneration of the entire protoplasm.

Presse Médicale, Paris

42: 953-976 (June 13) 1934

*Action of Splenic Extracts on Diabetic Patients. F. Rathery, I. Cosmulesco and C.-E. Grignon.—p. 953.
Diiodotyrosin (3.5 Diiodo-4-Oxyphenylalanine): Its Use in Treatment of Hyperthyroidism. G. Laroche and B. Klotz.—p. 955.
Against Taxis in Strangulated Hernia. A. Ameline.—p. 957.
Can One Measure Arterial Pressure by Venous Road? P. Goinard and C. Bardenat.—p. 958.
Comparative Study of Treatment of Frambesia by Different Arsenicals and by Potassium Iodide. S. Golovine.—p. 959.

Action of Splenic Extracts on Diabetic Patients.—Because of the experiments with splenic extract on normal and diabetic dogs showing its influence on glycemia, Rathery and his co-workers studied the action of the extract in human diabetic subjects. This study was divided into three parts: the action of the splenic extract on free and combined blood sugar, the action on the glycemic variations following the ingestion of dextrose, and the action on the variations in glycemia resulting from the injection of insulin combined with the ingestion of dextrose. The preparation employed was an extract of defatted and deproteinized spleen. In general (eight out of ten cases) the intravenous injection of this preparation in diabetic patients produced a fall in the free sugar, the maximum being attained at the end of an hour and a half. The percentage fall varied from 5.1 to 31. The phenomenon begins to decline at the end of about three hours but exceptionally may persist. The combined sugar usually falls, the maximum being attained often during the first half hour. The association of intravenous splenic extract injection with the test of hyperglycemia produced in diabetic patients by the injection of dextrose retards the appearance of free sugar hyperglycemia but seems to increase the intensity and duration. The association of intravenous injection increases, sometimes remarkably, the effect of insulin on the free sugar during the test of provoked hyperglycemia. It would perhaps be advantageous in some cases of diabetes to use the favorable action which the extract exercises on insulin.

42: 977-992 (June 16) 1934

*Medical Treatment of Chronic Cholecystitis: Personal Method. M. Chiray, A. Marcotte and R. Le Canuet.—p. 977.
Puerperal Azotemia, Polypeptidemia and Chloremia. E. Estienny, J. Lasserre and P. Valdiguie.—p. 979.

42: 1017-1032 (June 23) 1934

Subarachnoid Hematomas and Cerebral Aneurysms. E. Moniz.—p. 1017.
Roentgenologic Aspect of Intestinal Mucosa in Colon Tuberculosis. G. Maingot, R. Sarasin and H. Duclos.—p. 1019.
Accumulation of Their Sclerotic Effects by Association of Liquids Employed for Curative Fibrosis of Varices: Sodium Benzoate. G. Delater and M. Chailly.—p. 1022.

Medical Treatment of Chronic Cholecystitis.—Chiray and his collaborators found by accident the sedative effects exercised by certain calcium salts injected intravenously and parathyroid extract intramuscularly on painful cholecystitis. Patients with chronic cholecystitis obtained an improvement in general condition by calcium intravenously, a spontaneous decrease in pain (often even disappearance of pain on palpation) and a modification of painful attacks which became less frequent and less severe. The method that they used was the daily, or alternate daily, injections of 5 cc. of a 10 per cent solution, each treatment comprising from ten to fifteen injections. The parathyroid extract was administered subcutaneously in daily doses of 1 cc., each series consisting similarly of from ten to fifteen injections. Sometimes these substances were alternated in the same patient, and sometimes only one was used. Nine cases are reported in which this method caused important improvement in almost all. It is probable, they believe, that the sedative action on the biliary passages is due to increase in the biliary calcium. This method may be used either as a preliminary to surgical intervention, with the advantage of increasing the blood coagulability and improving the general state, or as basal medical treatment in the course of various painful conditions of the gallbladder.

Revue Française de Pédiatrie, Paris

10: 121-256 (No. 2) 1934

Cytologic Evolution of Cerebrospinal Fluid in Meningococcic Meningitis Treated by Serum. B. Tassovatz.—p. 121.
Importance of Pathology of Twins in Pediatrics. E. Stransky.—p. 159.
*Chlorides in Meningitis. L. O. Finkelstein and F. S. Merson.—p. 204.
Gastric Ulcer in Childhood. H. L. Rocher.—p. 218.
*Chronic Abdominal Pains in Childhood: II. Angiocholecystitis of Children. A. Guerstein and I. Reydermann.—p. 225.
Analysis of Some Symptoms of Tuberculosis of Bronchial Lymph Nodes in Young Children. A. S. Lévine.—p. 241.

The Chlorides in Meningitis.—If there is a possibility of using the quantity of chlorides in the cerebrospinal fluid in meningitis as a prognostic sign, Finkelstein and Merson recognize the necessity of observing the oscillations of the chlorides in the course of meningitic processes of different types. The material for their studies comprised twenty-three cases of epidemic meningitis, nine of tuberculous meningitis, one of purulent meningitis, four of aseptic serous meningitis, one of syphilitic meningitis and the remaining without alteration of the meninges, a total of forty-one cases. The procedure was as follows: The urine was collected for twenty-four hours; the same day the gastric secretion was examined after a test breakfast; after this, blood was drawn for chloride determinations, and finally lumbar puncture was performed. The quantity of chlorides found in the spinal fluid normally varied from 720 to 740 mg. per hundred cubic centimeters. They concluded that the quantity of chlorides of the spinal fluid in serous meningitis did not deviate from normal. In mild cases of epidemic meningitis the chlorides were only slightly lowered.

The decrease in chlorides progresses with the severity and duration of the process. In dangerous cases, values even lower than that of the blood are obtained. In tuberculous meningitis the diminution of chlorides is more accentuated than in epidemic meningitis. The quantity of cerebrospinal fluid chlorides may often serve as a good differential sign between meningismus and serous meningitis on the one hand and tuberculous meningitis on the other. Increase in the chlorides of the spinal fluid is a favorable prognostic sign; decrease is unfavorable. Diminution of cerebrospinal chlorides in meningitis depends not only on demineralization of the blood plasma but on the general demineralization of the entire organism. To hinder the demineralization of the organism with meningitis, it is important to look after the food and reinforce it as much as possible with mineral constitutents.

Abdominal Pains in Childhood.—Guerstein and Reydermann believe that careful history taking and abdominal palpation of children with abdominal pains will often permit the diagnosis of angiocholecystitis. The best confirmation is given by the method of duodenal sounding with evacuation of the gallbladder with the help of concentrated solutions of magnesium sulphate described by Lyon. Most of the patients examined had an angiocholecystitis without calculus. The authors feel that in an important group of children with abdominal pain, especially in the region of the umbilicus or higher, a simple angiocholecystitis is the explanation and that the duodenal sound method is a valuable accessory diagnostic aid.

Schweizerische medizinische Wochenschrift, Basel

64: 677-700 (July 21) 1934. Partial Index

Rôle of Roentgen Rays in Experimental Carcinogenesis. A. Béclère.—p. 679.
Mitogenic Permeability of Cells. A. Gurwitsch.—p. 681.
*Infectious Polyarthritis in Adults and Children with Involvement of Hip Joints and Protrusion of Floor of Acetabulum. R. Kienböck.—p. 688.
Roentgen Examination of Diseases of Pancreas. M. Lüdin.—p. 692.
Ray Treatment of Carcinomas of Larynx and Pharynx. F. R. Nager, H. R. Schinz and A. Zuppinger.—p. 695.
Discussion of the Cancer Problem and the Public. A. Soiland.—p. 698.

Involvement of Hip Joints in Polyarthritis.—Kienböck calls attention to the fact that occasionally the hip joints become involved in infectious polyarthritis and that it may happen that the floor of the acetabulum is forced toward the pelvis, so that a pelvic protrusion of the acetabulum results. The arthritis may be of various types: it may be a nonspecific infectious arthritis, which is generally acute, but may also be chronic; it may be the acute, chronic arthritis of gonorrhea; or it may be an articular tuberculosis, in which there are recurrent inflammatory attacks. Roentgenologic and anatomic observations have revealed that in the course of an inflammation of the articular capsule and of the destruction of the cartilaginous coverings by the formation of granulation tissues and pannus the osseous acetabular floor becomes decalcified, softened and occasionally partly destroyed. The pressure from the head of the femur deepens the acetabular floor and forces it toward the center and slightly upward. Following cessation of the inflammation, the acetabular floor hardens again and the roentgenogram reveals a pelvic protrusion. The author points out that Breus in 1913 differentiated three stages in the development of this disorder, and he shows that the process is a sort of wandering of the acetabular floor, which may progress gradually. The joint either becomes fixed in contracture and ankylotic, or its motility may be reestablished: the latter is possible only in rather mild cases, and later there often appear progressive changes of the bones, which are noticed in primary deforming arthrosis. The author reports the histories of two patients. In both cases there existed a bilateral, infectious inflammation of the hip joint with partly slight and partly severe protrusion of the acetabular floor. The first patient was a woman, aged 54, and the second a boy, in whom the pain of the hip joint set in at the age of 13. This second case is especially worthy of note because the disorder is comparatively rare in children and young persons. The author calls attention to similar changes in the hip joint, which develop in other diseases, such as tabetic arthropathy, Paget's disease, osteomalacia and osteolytic cancer metastases. However, these rather extensive skeletal changes should be differentiated from the described local changes caused by articular disease.

Minerva Medica, Turin

2: 1-32 (July 7) 1934

Relations Between Morphologic Constitution and Tuberculosis. G. L. Fegiz and R. Rimini.—p. 1.
Takata Reaction in Pulmonary Tuberculosis. C. Zach and L. Brancolini.—p. 6.
*Oleothorax in Treatment of Pleuropulmonary Diseases. L. Capani.—p. 9.
Catarrhal Icterus in Pulmonary Tuberculosis. P. Marin and O. Del Piero.—p. 16.

Oleothorax in Treatment of Pleuropulmonary Diseases.—Capani found that in antiseptic oleothorax the late results have always been satisfactory in cases treated for tuberculous empyema. Two cases of septic empyema with pleuropulmonary fistula treated with oleothorax afforded excellent results. In adhesive oleothorax, late observations also confirmed the immediate success of the treatment. The author was constantly successful in keeping the pleural cavity and the collapse effective with the subsequent hypertensive pneumothorax. He attributes little importance to the collapsing action of the oleothorax in lesions opposing pneumothoracic collapse. In one case of pleuropulmonary fistula complicated with valve and empyema in full oleothoracic treatment the oleothorax was repeated after emptying, and closure of the fistula and sterilization of the pleural cavity were obtained. On lesser indications of the oleothorax, such as flexible mediastinum and insatiable pneumothorax, the method seems to be responsive if applied prudently and only in cases of extreme necessity. In all cases the observations after a lapse of some years from the suspension of the oleothorax revealed a constant and strong secondary sclerosis of pleuritic origin, which has always been increasing. Since this phenomenon is so constant, the author maintains that the cause of it may be found in the action of the aromatized oil that is used in the oleothorax. It cannot be determined how much of this action may be attributed to the aromatized oil and how much to the simple mechanical action of the liquid, which seems to have great importance. Pleuroscopic observations after the suspension of the oleothorax revealed considerable pleural reaction, which rendered the serosa completely opaque: the pleural surfaces seemed to be covered with layers of fibrin. The aspect of the pleura must be interpreted as a reaction that has its beginning in the process of pleuritic fibrosis observed long after the suspension of the oleothorax.

Dermatologische Zeitschrift, Berlin

69: 193-304 (July) 1934

Significance of Experimental Research on Syphilis for Human Syphilology. R. Brandt.—p. 193.
*Occurrence of Invisible Form of Causal Agent of Syphilis. J. Van Haelst.—p. 212.
Ulcers of Vulva Following Tonsillectomy in Child. K. Steiner.—p. 220.
Leukoderma Following Relapsing Herpes Simplex. F. Kalz.—p. 226.

Invisible Form of Causal Agent of Syphilis.—Van Haelst states that there is a granular, ultravisible form of the causal agent of syphilis. From the fact that spirochetes are rarely demonstrable in the lymph nodes of rabbits and that in spite of this these organs are highly infectious, it has been assumed that the spirochete represents only one phase of the developmental cycle of the causal micro-organism of syphilis. The discussions on the invisible form of the organism induced the author to investigate whether there is a difference in the manifestation developing after the inoculation of organs containing large numbers of spirochetes and of those that are free from spirochetes. He found that the incubation period is the longer as the quantity of the infectious inoculation material is smaller. Studies on the threshold of infection revealed that in rabbits the threshold is higher in the syphiloma than in the lymph nodes; however, the difference in the two thresholds does not correspond to the number of spirochetes contained in the two structures. The infectiousness of the lymph nodes of the knee is generally from ten to fifteen times less than that of the syphiloma, in spite of the fact that the ratio between their content in spirochetes is still smaller (1:200). The infectiousness of the inguinal lymph nodes that have been removed during the stage of the florid chancre approaches that of the syphiloma, in spite of the great difference in the number of spirochetes contained in the two. To determine whether these differences justify the assumption of the existence of an ultravisible form of the pathogenic agent of syphilis, the author

subjected the emulsions from the fresh organs to careful studies and succeeded in demonstrating the presence of spirochetes in nearly all the infectious organs, although the tissues were apparently free from spirochetes. The author reaches the conclusion that the syphilis infection is always due to infection with Spirochaeta pallida. For the apparent contradiction between the nearness of the thresholds of infection of syphilomas and lymph nodes and the great difference in the number of spirochetes that are present in the two structures, the author assumes that the few organisms that are present in the lymph nodes have acquired a high resistance by being exposed to the influence of antibodies. However, the majority of the organisms present in the syphiloma have been influenced only by the locally formed antibodies and their resistance has decreased, so that their infectiousness has been partly lost.

Deutsche medizinische Wochenschrift, Leipzig

60: 1039-1074 (July 13) 1934. Partial Index

*Pathogenesis and Therapy of Psoriasis. O. Grütz.—p. 1039.
Treatment of Pulmonary Abscess. K. Machold.—p. 1043.
Irritated Stomach and Peptic Ulcers. Their Etiology and Therapy. K. Westphal and W. Kuckuck.—p. 1046.
Medicinal Plants in Therapy of Diseases of Digestive Organs. K. Nissen.—p. 1050.

Pathogenesis and Therapy of Psoriasis.—Grütz recapitulates his studies on psoriasis (*Klin. Wchnschr.* **12:**373 [March 11] 1933; abstr. THE JOURNAL, May 27, 1933, p. 1729), in which he proved that psoriasis is caused by a disturbance in the fat metabolism and that it can be counteracted by a diet deficient in fat. He gives instructions about the foods that should be avoided. He stresses particularly all types of fats (bacon, lard, butter, cream, oil and so on), meats with a high fat content (pork, mutton, goose, duck and so on), certain fish (eel, herring, salmon, carp and all fish roe) and egg yolks, the latter on account of their cholesterol content. Cakes and other baked foods containing fats must likewise be avoided. Permitted are lean meats, fish with a low fat content, soups and vegetables, provided they have been prepared without fat, fruits and berries, preserves and fruit juices and various breads that have been prepared without fat. On such a diet, obese patients with psoriasis frequently lose weight, while patients of normal weight do not, provided their calory requirements are adequately supplied in the form of carbohydrates and proteins. Emaciated persons with psoriasis have even been known to gain in weight under the influence of the fat deficient diet. The author discusses the possibility that just as the carbohydrate tolerance differs in diabetic patients there may be a difference in the fat tolerance of psoriatic patients. On the basis of clinical manifestations this seems probable, for in some patients a slight reduction in the fat intake is effective, while in others a more strict regimen is necessary. Moreover, it is advisable to investigate whether the fat synthesis is disturbed in psoriatic patients. The author reports that in some patients the results of the fat-deficient diet are already noticeable after two or three weeks, while in others six weeks or even several months are necessary to reveal the effects. In some patients the psoriatic lesions spread in area but decrease in depth shortly after the onset of the treatment, and there may also be a temporary increase in scaling; but this should not tempt the physician to interrupt the treatment, for this "becoming acute" is only temporary and the continuation of the diet will finally effect the complete disappearance of the lesions.

Klinische Wochenschrift, Berlin

13: 1009-1040 (July 14) 1934

"Heavy" Hydrogen and Its Biologic Significance. W. Brandt.—p. 1009.
*Diabetes Insipidus and Interbrain. R. Gaupp.—p. 1012.
Method of Gas Analysis of Blood in Presence of Narcylen. E. Derra and J. Korth.—p. 1014.
Endocranial Complications Following Pharyngeal Phlegmon. E. Grabscheid.—p. 1017.
Elimination of Follicular Factor and Anterior Pituitary-like Principle in Older and Aged Men. (Problem of Climacteric in Men) III Quantitative Determination of Sex Hormones in Healthy Persons and in Patients with Mental and Nervous Disorders. W. Österreicher.—p. 1019.
*Treatment of Meningitis with Roentgen Rays. H. Hippe and F. Lickint.—p. 1022.
Encephalopathic Complications of Exophthalmic Goiter. J. Krotoski.—p. 1024.
Simplified Method for Differentiation of Subgroups A_1 and A_2. N. Blinov.—p. 1025.

Diabetes Insipidus and Interbrain.—Gaupp reports the case of a man, aged 35, who, after an automobile accident that resulted in a concussion of the brain, loss of consciousness and vomiting, developed a severe diabetes insipidus and a mild hemiplegia of the left side. Substitutional hormone therapy was effective in the beginning, but after several months it failed completely. In addition to slight psychic disturbances (alteration of hypothymic and hyperthymic phases) and insomnia, the patient had attacks of headaches, perspiration, increase in temperature, vomiting, anesthesia of the paralyzed side, anginous cardiac disorders, mild ileus and, in the beginning under the influence of medication with the hypophyseal preparation, also an inhibition of the diuresis, apparently of spastic origin. During and after these attacks, a state of excitation became manifest with a tendency to destruction, aggressiveness and irresponsible running away. During one attack the patient attempted suicide. The author points out that many aspects of this psychoneurologic syndrome resemble those of acute epidemic encephalitis, in which the inflammatory changes are limited to the interbrain and midbrain. The author points out that in epidemic encephalitis the water and sodium chloride metabolisms are likewise occasionally involved. The psychic changes are known as symptoms of the interbrain. The insomnia, the temporary increases in temperature and the symptoms indicating changes in the autonomic nervous system (spastic contractions of the smooth muscles) can be traced to an involvement of the third ventricle. The clinical symptoms alone do not permit definite conclusions about the type and extent of the traumatic injury of the brain, but it is probable that considerable impairments in the region of the interbrain must have resulted from the trauma. It is likely that the pathologic process extends into the right peduncle, but whether beyond that the tuber cinereum or even the hypophysis is involved is unknown. He reviews the experimental results and the pathologic changes in diabetes mellitus reported by Staemmler. He reports his own observations based on the studies of Scharrer, who first called attention to the fact that in fishes, reptiles and amphibians the interbrain contains ganglion cells that have a secretory activity. Similar observations were made in mammals, and in collaboration with Scharrer the author has made studies on a human subject. He concludes that the hesitation to speak of a hormone formation in the brain has been overcome.

Treatment of Meningitis with Roentgen Rays.—A review of the literature convinced Hippe and Lickint that roentgen rays have produced favorable effects in some cases of serous meningitis. Opinions still differ regarding the efficacy of roentgen rays in tuberculous meningitis, but most of those who have tried it report unsatisfactory results. Epidemic meningitis, particularly the subchronic and chronic form, has been known to be influenced favorably by roentgen treatment. The authors relate the history of a man, aged 24, in whom the meningitis involved more and more the spinal portion, so that extreme pain was felt along the entire spinal column. In spite of repeated lumbar and cistern punctures and of continued medication with methenamine, the symptoms became more severe. Gradually, in the course of several months, the aspects of chronic spinal meningitis developed. Since all other measures proved ineffective, it was decided to resort to roentgen treatment. The entire spinal column and the occiput were divided into seven fields measuring 10:12 cm., and 20 per cent of the unit skin dose was applied to each field. The tension was 160 kilovolts, the current strength 6 milliamperes, the filter 0.5 mm. of copper and 1 mm. of aluminum, and the distance 30 cm. The irradiations were given at intervals of from two to four days. Four series of seven sessions each were given in the course of three months. Thus each field received 80 per cent of the unit skin dose. The result of this treatment was that quite early in the treatment the pain in the spinal cord was considerably reduced. After approximately one half of the treatments had been given, the fever decreased and the appetite increased. The patient gained in weight and the sedimentation speed (Westergren) fell from 48 to 16 mm. After sixteen months the patient was discharged from the hospital and was able to work. During a period of two years he has been free from relapse. The authors recommend roentgen therapy for similar cases of chronic meningitis.

Medizinische Klinik, Berlin

30: 889-920 (July 6) 1934. Partial Index

Cancer Problems. L. Aschoff.—p. 889.
Sources of Error and Possibilities for Mistakes in Ordinary Laboratory Methods Employed by the General Practitioner. W. W. Siebert. —p. 895.
*Indications for Nonspecific Therapy of Neurosyphilis. A. Kral.—p. 898.
Action of Epinephrine on Bone Marrow: Hormone Regulation of Hematopoiesis. K. Paschkis and Annie Schwoner.—p. 900.
*Treatment of Bullous Oral Exanthems by Means of Liver Preparations. M. Sebba.—p. 902.

Indications for Nonspecific Therapy of Neurosyphilis.—Kral says that the best protection against a late involvement of the central nervous system is thorough treatment of the syphilitic patient during the early stage of the disease. His neurologic clinic stresses the necessity of subjecting the syphilitic patient to spinal puncture five years after the infection. Patients who then have a positive reaction in the cerebrospinal fluid should be subjected to an effective prophylactic treatment. The specific therapy is not sufficient, and the author thinks that in these latent cases, with a positive reaction in the cerebrospinal fluid, fever therapy with subsequent antisyphilitic treatment gives the best results. Malariotherapy with arsphenamine and bismuth compounds subsequently is the method of choice for these patients. The author considers malariotherapy advisable in all cases of late latency in which no special contraindications exist, such as decompensated cardiac defects, active tuberculosis, renal diseases, great obesity or severe cachexia. He suggests that in the latter cases the malariotherapy be replaced by treatment with bacterial proteins.

Liver Preparations in Treatment of Bullous Oral Exanthems.—Sebba points out that the bullous, pemphigus-like processes of the oral mucous membrane have proved virtually incurable. He classifies with the bullous processes all those disorders that appear in the form of large or average bullae in the buccal and palatal mucous membranes. The bullae burst readily and the roundish, readily bleeding foci of the mucous membrane frequently merge, so that considerable areas of the mucous membrane are denuded of epithelium. The bullous stage is not often observed, but remnants of the burst foci are occasionally seen. Improvements and exacerbations alternate, but there is never a complete cure. After discussing the differentiation from erythema exudativum multiforme, pemphigus, ulcerous stomatitis and allergic bullous disorders of the mucous membrane usually caused by certain medicaments, the author gives the clinical history of a man, aged 78, who, in addition to a severe angina pectoris, had a bullous exanthem on the chest, the left leg, the inguinal region, the scalp, the nostrils, the pharynx and the palate. The oral bullae ruptured and swallowing became difficult. Since painting with a 1 per cent solution of acriflavine hydrochloride was of slight benefit, the author resorted to oral liver therapy. At first a liquid preparation was given and later natural liver. Under the influence of this treatment the patient's general condition improved noticeably and after several weeks the oral symptoms had entirely disappeared. The author cites another case that took a similar course, and he recommends a trial with liver preparations in the bullous exanthems and enanthems of the mouth, the skin and the nose. The lesions of the mucous membrane should either be left alone or should be painted with a 1 per cent solution of acriflavine hydrochloride. Corrosives are injurious and should be omitted.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

97: 189-252 (July) 1934

Modern Care for Pregnant Women in Campaign Against Declining Birth Rate. F. Stähler.—p. 189.
Course of Delivery Following Fracture of Pelvis. K. Welsch.—p. 197.
Efforts to Reduce Obstetric Maternal and Infantile Birth Rate. K. Traube.—p. 208.
Influence of Prolonged Administration of Hormone of Anterior Lobe of Hypophysis from Urine of Pregnancy on Vital Organs in Guinea-Pigs. O. Hajek and K. Wepschek.—p. 217.
*Habitual Hydramnion. J. Beaufays.—p. 221.
Histopathology of Sclerocystic Ovaries. E. E. Gigowsky.—p. 226.

Habitual Hydramnion.—Beaufays reports the history of a woman, aged 35, who had been pregnant six times. The first pregnancy ended normally. During the second pregnancy she developed edema, and the child died two days after the delivery. The following pregnancy terminated with the birth of a macerated fetus. During this pregnancy the woman again had severe edemas and she stated that on rupture of the bag of waters an unusually large amount of fluid had been passed. During the fifth pregnancy the woman was first seen in the author's clinic. On admission she showed severe edema. The protein test of the urine was weakly positive and the sugar test was negative. The blood pressure was 145 mm. of mercury. The edemas disappeared after several days of a special diet and of limitation of fluid intake. The blood pressure decreased likewise. Fetal movements and heart sounds were not perceptible. After the death of the fetus had been established, delivery was induced. A macerated fetus was born and large amounts of greenish amniotic fluid were discharged. During the sixth pregnancy there were no edemas during the seventh month, but the patient's abdomen was already of considerable size and the urine again contained protein. The condition was diagnosed as nephropathia and hydramnion. At her request she was discharged from the clinic, but she was ordered to keep a strict diet and rest in bed. She returned to the clinic after one month, complaining of nausea and vomiting. The circumference of the abdomen had increased and respiration was difficult. The fetal movements had ceased. Delivery was induced and on the rupture of the bag of waters, 3,300 cc. of greenish fluid was discharged. The fetus was macerated but its necropsy revealed no abnormality. The placenta was unusually large. Repeated tests had never revealed signs of syphilis. The author reviews the literature on habitual hydramnion. Reports of the habitual form are rare. The following factors have been cited as causes: (1) on the part of the mother: placenta praevia, large placentas and nephropathia of pregnancy; (2) on the part of the fetus: repeated occurrence of hydrocephalus or of dropsy and changes in the umbilical cord. The children are always born dead and macerated, but death of the mother is mentioned only in the case of placenta praevia. Nothing definite is known about the etiology.

Münchener medizinische Wochenschrift, Munich

81: 1045-1080 (July 13) 1934. Partial Index

*Hypophyseal Plethora (Cushing's Disease; Pituitary Basophilism). F. Jamin.—p. 1045.
Helminthiasis or Epigastric Hernia? H. Schwennicke.—p. 1048.
Psychiatry and Race Hygiene. Rüdin.—p. 1049.
Varicose Syndrome. H. Doerfler.—p. 1055.
*Treatment of Asthenia. K. Backmund.—p. 1059.
Cure of Keratomalacia with Vitamin A Preparations and Requirements of Their Successful Application. H. Brugsch.—p. 1062.
Technic of Unpadded Plaster-of-Paris Bandage of Forearm. W. Schmid. —p. 1063.

Hypophyseal Plethora (Cushing's Disease: Pituitary Basophilism).—Jamin describes a case of the syndrome (obesity, osteoporosis, genital hypoplasia, hypertension and adynamia) that Cushing ascribes to the basophil adenoma of the anterior lobe of the hypophysis. The author emphasizes that circulatory disturbances, acrocyanosis, angiospasm and hypertension play a determining part in the syndrome, and for this reason he suggests the term "hypophyseal plethora" as an antithesis to the term "hypophyseal cachexia." He points out that the disease is the manifestation of an endocrine hyperactivity of the adenohypophysis. This hyperfunction is to be differentiated from the effects of the growth hormone, for it is rather the result of an excessive, unchecked hypophyseal stimulation of subordinate endocrine glands, particularly of the suprarenals, the posterior lobe of the hypophysis and the parathyroids, which becomes manifest as a pluriglandular disturbance involving the appearance as well as the functional activities of the organism. High voltage roentgen irradiation has been known to influence the syndrome favorably. The endocrine hyperfunction is probably the result of adenomatous or diffuse proliferation of the basophil elements of the adenohypophysis.

Treatment of Asthenia.—Backmund calls attention to the treatment of asthenia by means of Bucky's borderline rays. He abandoned Bucky's original method of generalized irradiation and gave instead eight irradiations on eight different fields. Each field receives 300 roentgens. The rays are applied by means of a borderline ray apparatus. The focal distance is 15 cm., the strength of the current 10 milliamperes and the tension 9 kilovolts. The dose of 300 roentgens (measured in the air) produces a temporary erythema but rarely; after from one to two weeks, however, a pigmentation often becomes visible and persists for longer periods. The author

employed the borderline ray treatment in thirty-five cases manifesting the signs of the hypotonic syndrome. The treatments were given in the course of a sanatorium cure (generally of three weeks' duration). In addition to the borderline ray therapy the patients received only the usual physical and dietary treatment. The borderline ray therapy increased the low blood pressure, the low blood sugar and the basal metabolism. The vasomotor and dyskinetic disorders disappeared and the general condition improved. In discussing the action mechanism of borderline ray therapy in asthenia the author expresses the opinion that its efficacy is due to the modification of the sympathetic nervous system by way of the skin, for in the asthenic person the regulation of this system is disordered.

81: 1081-1118 (July 20) 1934. Partial Index

Paralysis of Plexus Innervating Shoulder and Arm Following Prophylactic Vaccination with Tetanus Serum. Ridder.—p. 1085.
*Hypophyseal Plethora (Cushing's Disease: Pituitary Basophilism). F. Jamin.—p. 1085.
*Demonstration of Protein in Urine by Means of Sulphosalicylic Acid Paper (Protein Test Paper): New Method for Practitioner. F. A. Wahl.—p. 1090.
*Removal of Needle from Lung by Incision into Chest. M. Lebsche. —p. 1094.
Intestinal Motility in Icterus. Gutzeit and Kuhlbaum.—p. 1095.
Duodenojejunal Flexure Simulating Ulcer in Roentgenogram of Stomach. G. Radwansky.—p. 1099.
*Generalized Xanthomatosis. K. Herman.—p. 1100.

Simple Method for Demonstration of Protein in Urine.—Wahl emphasizes the importance of sulphosalicylic acid in the demonstration of protein in the urine and describes a new simple method that employs a specially prepared paper as a reagent. The paper can be prepared by the practitioner in the following manner: A piece of blotting paper is placed on a piece of glass and is saturated with a 20 per cent solution of sulphosalicylic acid. After the fluid has evaporated, the blotting paper is cut into strips 7 by 0.5 cm. A small bundle of these strips is carried by the physician. In order to effect flocculation of the protein contained in a specimen of urine, it is sufficient to dip a strip of the paper into it. The paper is a highly sensitive reagent, by means of which a protein content of less than 0.025 per cent can be detected. The paper may be kept for a long time: several months of exposure to light and air did not impair its efficacy.

Removal of Needle from Lung by Incision.—Lebsche advises that needles that have penetrated into the deeper air passages and cannot be removed by means of bronchoscopy be removed by incision into the chest. The dangers of the intervention have been reduced since bronchotomy has been replaced by pneumobronchotomy. Sauerbruch advises the same procedure for removal of foreign bodies from the bronchi as he does for the removal of bullets from the lung. The thoracic cavity is opened widely, the lung collapses and the foreign body can be felt. The surgeon holds the region of the foreign body with the left hand and makes the necessary incision to remove the foreign body. Blood, mucus and pus are removed; the wound is dabbed with iodine and then carefully closed with several button sutures. Lung and pleura are sutured in two or three further layers, and the thoracic wall is closed under differential pressure. The author maintains that the dangers of this method are comparatively slight. He describes two cases. One report proves that the outcome of the intervention is largely determined by the localization and course of the accompanying inflammation. The second case shows that postponement makes the treatment more difficult.

Generalized Xanthomatosis.—Herman maintains that generalized xanthomatosis is essentially an infiltration of the various organs with cells containing cholesterol. The process produces a granulation tissue and for this reason is referred to also as lipoid granulomatosis. Deposits of keratin or of phosphatides, respectively, produce Niemann-Pick's disease and Gaucher's disease. Deposits of cholesterol produce xanthomatosis. Schüller-Christian's disease is not a disease entity but belongs to the group of xanthomatoses. The author gives a detailed description of the clinical history of a woman who had a generalized xanthomatosis. The diagnosis proved difficult, for the patient had diabetes insipidus, xanthoma of the eyelids and ulcerous lesions of the skin, and the cholesterol content of her blood was greatly increased. The latter factor finally decided the diagnosis of generalized xanthomatosis.

Wiener klinische Wochenschrift, Vienna

47: 865-896 (July 13) 1934. Partial Index

*Clinical Aspects and Etiology of Purely Traumatic Fatal Shock and Remarks on Nature of Shock. R. Herbst.—p. 868.
*Differential Diagnostic Significance of Specific Dynamic Protein Action. F. Högler.—p. 871.
Diagnosis of Tumors of Corpus Callosum. K. Erb.—p. 876.
*Treatment of Vasoneurotic Disturbances with Preparations of Anterior Lobe of Hypophysis with Especial Consideration of Blood Pressure Reaction in Changed Postures. K. Rudsit.—p. 878.
Spontaneous Cure of Renal Tuberculosis? R. Chwalla.—p. 882.
Alleviation of Pain in Obstetrics. W. Weibel.—p. 884.

Traumatic Fatal Shock.—Herbst shows that the circulatory disturbances produced by traumas not causing tissue injuries are nervous vascular crises, which, according to the circumstances, produce different changes in the periphery. He rejects a differentiation between shock and collapse and applies the term shock to all traumatic circulatory crises. However, he differentiates purely traumatic from wound shock and points out that there is also an erethistic form of traumatic shock. On the basis of a case of shock ending fatally, he discusses the various manifestations that are possible in case of traumatic shock and also its genesis and therapy.

Significance of Specific Dynamic Protein Action.—Högler calls attention to the reports of investigators who recommended the determination of the specific dynamic protein action as a differential diagnostic aid in endocrine, particularly hypophyseal, disturbances. Another group of workers pointed out that the specific dynamic protein action not only is dependent on the state of the endocrine system but is influenced by the rapidity of the evacuation of the stomach and by the speed of the resorption. The author's studies disclosed that the secretory activity of the stomach plays a part. He found that the specific dynamic action may be reduced in cases of hypoacidity or of anacidity. However, the specific dynamic protein action can almost be normalized in these persons by administering larger quantities of hydrochloric acid-pepsin. The fact that this was possible even in a hypophyseal dwarf shows that disturbances in the gastric secretion may weaken or suspend the specific dynamic action in persons with or without endocrine disturbances. Further studies revealed that even the preparation of the food influences the specific dynamic protein action. The author reaches the conclusion that the determination of the specific dynamic protein action may aid in the differential diagnosis of endocrine disorders only if disturbances in the gastro-intestinal function can be excluded.

Blood Pressure and Posture.—Rudsit studied the blood pressure in the reclining, sitting and erect positions. With the change in position he observed among the examined persons three distinct types of blood pressure reactions, but he detected no relation between the reaction and the disorder existing in the examined person. Of the three types observed, he attaches the greatest significance to that one in which the blood pressure is lower in the erect than in the reclining position. Persons in whom this type of blood pressure reaction is most pronounced have severe vasomotor disorders on the basis of an endocrine disturbance. The author describes five cases of vasoneurotic disturbance and shows the favorable influence produced by preparations of the anterior lobe of the hypophysis. The improvement in the subjective symptoms was accompanied by a reversion from the pathologic to the normal blood pressure reaction.

Zentralblatt für Gynäkologie, Leipzig

58: 1633-1680 (July 14) 1934. Partial Index

Closure, Reimplantation and Inflation of Uterine Tubes While Abdomen is Open. L. Fraenkel.—p. 1634.
*Abortion Between Two Periods. K. Heim.—p. 1641.
Semmelweis and Modern Bacteriology. K. Burger.—p. 1649.
*Diagnosis of Interstitial Pregnancy. F. Dražančić.—p. 1653.

Abortion Between Two Periods.—Heim points out that the question as to whether menstruation may still take place following impregnation of the ovum has been answered variously in recent times. After reviewing some of these contradictory opinions he gives the detailed description of a case in which it could not be doubted that following impregnation, that is, during pregnancy, a normally profuse menstrual bleeding occurred. The woman menstruated regularly after intervals of twenty-five or twenty-six days. The last menstruation (in February) did not essentially differ from the preceding one. On the twelfth

day after this menstrual period the woman observed an almost negligible discharge of blood, but, since she had had this intermenstrual discharge occasionally in former years, it was interpreted as a manifestation of ovulation. However, two days later there occurred an unusually profuse discharge of light red blood. In the course of this bleeding a formation the shape of a lentil was discharged. The histologic examination of the lentil shaped body revealed embryologic structures. The subsequent development of the woman's cycle was normal, for a regular menstrual bleeding set in on the end of the twenty-fourth day after the last menstruation. Of especial significance is the outcome of the Aschheim-Zondek test on the urine that was evacuated ten hours after the expulsion of the embryo. This urine produced in infantile mice reactions I (follicle maturation) and III (formation of corpus luteum). Reaction II was only microscopically perceptible in the form of incipient follicular bleedings in two animals. This outcome of the Aschheim-Zondek test corroborates the diagnosis of early abortion. The author is not quite certain about the age of the ovum, but on the basis of available data he assumes that impregnation took place approximately three weeks before the expulsion. After attempting a theoretical explanation of the menstruation after the impregnation, he reviews a case that somewhat resembles the described one and then calls attention to the eventual forensic significance of these observations.

Diagnosis of Interstitial Pregnancy.—Dražančić maintains that the diagnosis of implantation of the ovum in the intramural portion of the tube, as well as that of advanced interstitial pregnancy, usually encounters great difficulties. This is due to the fact that this form of ectopic implantation of the ovum may become manifest with such variable symptoms. As a rule, the interstitial pregnancy perforates suddenly in the third or fourth month, so that an immediate operation becomes necessary and there is no opportunity for observation. However, there are certain symptoms of interstitial pregnancy that some observers have detected. The author mentions the broad-based connection of the ovisac with the uterus, which was described by Baart de la Faille, and the so-called Ruge-Simon sign; namely, the nearly vertical sloping of the fundus uteri. Nevertheless, cases have been reported in which Ruge-Simon's sign was missing. The author describes a case in which, in addition to the two signs mentioned, he observed another symptom that he considers characteristic for interstitial pregnancy; namely, a free mobility of the section of the tube containing the interstitial pregnancy, which is independent of that of the uterus. A review of the literature revealed that Zimmerman likewise had observed this sign. He thinks that the three signs may aid in the early diagnosis of interstitial pregnancy and also in its differentiation from ovarian tumors and subserous myomas.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

78: 3419-3526 (July 28) 1934

Mycosis Fungoides and Parapsoriasis. W. L. L. Carol.—p. 3420.
How Anopheles Maculipennis entered the New Marshes of Lake Wieringen. J. A. Nijkamp and N. H. Swellengrebel.—p. 3427.
*Agranulocytosis (Malignant Neutropenia) Due to Medicaments. J. Groen and C. J. Gelderman.—p. 3444.
Results of Treatment of Sterility of Women with Salpingography. W. M. J. Schellekens and A. J. M. Duyzings.—p. 3468.
Atrophy of Both Frontal Lobes of Brain. G. P. Frets.—p. 3476.

Agranulocytosis Due to Medicaments.—Groen and Gelderman sought to determine what drugs were used by patients who were treated for agranulocytosis. Of thirteen cases observed during the last three years, neoarsphenamine was a causative factor in two. Nine patients had been taking some drug containing antipyrine or amidopyrine, often in combination with some other compound, before the onset of their symptoms. In one case recovery of the number of leukocytes and of the necrotic angina was observed after discontinuance of the amidopyrine medication. In two cases an inquiry among the physicians who had been treating the patients before their admission revealed only the use of acetylsalicylic acid, sodium salicylate and quinine sulphate; but the possibility that other drugs had been taken could not be excluded. Five additional cases, observed elsewhere, are described. In each case some compound containing amidopyrine had been used. The authors maintain that an outbreak of agranulocytosis may follow the use of various drugs. Among those antipyrine and amidopyrine have a definite etiologic significance. The possibility of a similar effect of other antipyretics and hypnotics (especially the two barbiturates) must be borne in mind. The danger of an agranulocytotic syndrome occurring after the use of drugs is probably restricted to certain allergic individuals. Many present conceptions about agranulocytosis must be revised; a toxic etiology of agranulocytosis appears to be the rule rather than the exception. During the administration of antipyrine or amidopyrine, a continuous supervision of the leukocyte count is imperative.

Acta Chirurgica Scandinavica, Stockholm

75: 185-272 (June 18) 1934

Necrosis of Femoral Epiphysis Owing to Insufficient Nutrition from Ligamentum Teres: Clinical Study Mainly Based on Experiences of Treatment of Epiphyseolysis Capitis Femoris. H. Waldenström.—p. 185.
*Examinations for Alcoholic Intoxication in Accidents. J. Hindmarsh and P. Linde.—p. 198.
Technic of Partial Gastrectomy (Billroth I). G. Bohmansson.—p. 221.
*Blood Changes After Gastric Resections. J. Dedichen.—p. 242.
Chordotomy in Tabes Dorsalis. E. Platou and H. Säthre.—p. 258.

Alcoholic Intoxication and Accidents.—Hindmarsh and Linde report a study of alcoholic intoxication in accident cases admitted for the past year to the surgical clinic in Stockholm. The clinical examination was supplemented by Widmark's micromethod of determination of alcohol in the blood. The results of clinical examination approximated rather closely those of blood examination. The authors emphasize that one should refrain from rendering an opinion as to inebriety in severe injuries. The incidence of accidents while under the influence of alcohol is quite high. It is not uncommon to find in men injured while at work that a considerable amount of alcohol has been consumed. Of 283 male patients admitted to the hospital because of injuries sustained in an accident, 41 per cent were found to have alcohol in the blood. Those injured in traffic showed about the same rate. Accidents while under the influence of alcohol were most frequent among elderly people. The number of accidents tends to increase over week ends and during bank holidays. More than half of those who have overturned while driving an automobile or a horse, as well as pedestrians who were knocked down, had alcohol in their blood. This supports the view that not only the driver of the vehicle but the injured person as well should be examined for inebriety.

Blood Changes After Gastric Resection.—Dedichen studied blood alterations in a group of 164 patients in whom a partial gastric resection was performed and, for comparison, in another group of nineteen patients in whom only a gastroenterostomy was performed. In the first group eighty-three, or about 50 per cent, developed anemia, while in the second group only three developed a mild degree of anemia. The average hemoglobin reading (Sahli) in the latter group was 92 per cent, a much higher figure than that obtained in the former. The tendency to anemia was much greater in women than in men. Thus of ninety-three men, twenty-five, or 27 per cent, developed anemia, while in a group of seventy-one women there were found fifty-eight, or over 80 per cent, with anemia. Of women whose age was below 40, only one failed to show anemia. The hemoglobin was as low as 24 per cent (Sahli) in some of the cases. Two men showed distinct symptoms of pernicious anemia. Comparison with Faber's figures on the incidence of anemia in cases of spontaneous achylia indicated that the tendency was greater in achylia following gastric resection. Anemia may likewise develop after a gastric resection in the absence of achylia. Thus it appears that achylia is not the sole factor of importance in the development of anemia after resection. The author considers that, if the views regarding the hematopoietic significance of the stomach are correct, an extensive resection may be a contributing factor. The results of his gastric analyses showed that four out of 107 had free hydrochloric acid. Complete achylia does not take place even after extensive resection, owing possibly to the presence of some pyloric glands in the fundal mucosa. The rapid emptying of the stomach after resection with the resultant abnormal stress on the function of the upper jejunum may be another contributing factor in anemia. In selecting the operation for a gastric ulcer, particularly in a young woman, one should take into account the tendency to anemia.